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# A review of the assassin-fly genus *Laphyctis* Loew, 1858 with descriptions of two new species (Diptera, Asilidae, Laphriinae)

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## Abstract

The asilid genus *Laphyctis* Loew, 1858 is revised. The genus is restricted to the Afrotropical Region where it has been confused with the more widely distributed *Laphystia* Loew, 1847, which currently has no Afrotropical representatives. Three previously described species are recognised: *Laphyctis gigantella* (Loew, 1852), type of the genus, *Laphyctis argenteofasciata* (Engel, 1929), reinstated from the synonymy of *L. gigantella*, and *Laphyctis orichalcea* (Lindner, 1973). Two new species are described, *Laphyctis eremia* **sp. n.** from Namibia and *Laphyctis iota* **sp. n.** from South Africa. The genus has a wide distribution ranging from northern Kenya to eastern South Africa and to western Namibia. Species are associated with dry, sandy habitats.

## Keywords

Afrotropical, assassin fly, cybertaxonomy

## Introduction

There has been some confusion surrounding the asilid genus *Laphyctis* Loew, 1858 and the purpose of this contribution is to clarify its position as a recognised genus within the Afrotropical fauna and to revise the regional fauna. The taxonomic history of *Laphyctis* may be summarised by way of the following brief historical review:

Loew (1847) – Described the genus *Laphystia* with the Palaearctic *Laphystia sabulicola* Loew, 1847 as type species. *Note*: An important defining character which would later be used to separate the genus from *Laphyctis* is clearly described on page 540 as follows '*die Marginalzelle am Flügelrande selbst geschlossen*' [*i.e.* The marginal cell (cell $r_1$) is closed at the edge of the wing].

Loew (1852) – Described *Stichopogon gigantella* from 'Mossambique' [= Mozambique]. *Note*: It is worth noting that although Loew had not yet described *Laphyctis*, to which *gigantella* would be assigned, he was not tempted to place his new species in *Laphystia*.

Loew (1858) – Briefly described *Laphyctis* with *gigantella*, from Inhambane (Mozambique) and Swakop (Namibia), being the only species allocated to the genus (therefore the type species of the genus).

Loew (1860) – Elaborated on his description of *Laphyctis* comparing it with *Laphystia* and giving a full description of *gigantella* citing both male and female material from Mozambique (Inhambane) collected by Peters and Namibia (Swakop) collected by Wahlberg. He illustrated both the wing (his fig. 42a) and antenna (his fig. 42b).

Loew (1862) – Merely listed *Stichopogon gigantella* from Mozambique.

Bigot (1879) – Argued that, in his opinion, *Laphyctis* and *Laphystia* could not be separated.

Becker et al. (1903) – Included *Laphyctis* and *Laphystia* as separate genera in their Palaearctic Catalogue. They did not list with certainty any species of *Laphyctis*, citing only (p. 124) '*? Erberi Schin.*' With a footnote '*teste Loewio, in hoc genere dubia.*'

Kertész (1909) – Listed *Laphyctis* as a synonym of *Laphystia* in his world catalogue.

Engel (1929) – Described *Laphystia argenteofasciata*, listing the unpublished name *clausicella* Herman as a synonym. He listed material from 'Brit. E. Africa [Kenya], Marstbed' and 'Saw Mills. S. Rhodesia [Zimbabwe]' without designation of a holotype, and illustrated the antenna (his fig. 8).

Hull (1962) – Included *Laphyctis* in the synonymy of *Laphystia*. He described *Laphystiella* as a new subgenus of *Laphystia*, with *argenteofasciata* as type species. *Note*: In stating (page 76) 'Flies with comparatively long, fine pile and the marginal cell open in contrast to the *Laphystia*, *sensu stricto*, in which the marginal cell is closed or is closed in the margin' he, apparently unwittingly, used the same feature for *Laphystiella* that was used by Loew to characterise *Laphyctis*!

Lindner (1973) – Described two new species of *Laphystia* from South West Africa (Namibia) – *kochi* (Gobabeb, Swakopmund) and *orichalcea* (Swakopmund). He

also listed *argenteofasciata* from Gobabeb and, later in the same paper, *gigantella* from the same locality.

Oldroyd (1974) – Discussed Afrotropical *Laphystia*, listing *Laphyctis* as a synonym, recognizing only *gigantella*, with *argenteofasciata* as a synonym, from Zimbabwe and Mozambique. He also described the monotypic genus *Prytania* from Namibia and Angola, with type species *P. albida*.

Lindner (1976, 1978) – Merely listed *Laphystia kochi* and *orichalcea* from South West Africa (Namibia).

Oldroyd (1980) – Catalogued Afrotropical *Laphystia*, listing *Laphyctis* as a synonym. *Note*: Although he listed two species, *albicans* and *gigantella*, the entry for *albicans* (type species of *Laphystotes* Oldroyd, 1974) is incorrect and repeated under *Laphystotes* where it correctly belongs. He lists *argenteofasciata* and *clausicella* as synonyms of *gigantella* and neglected to list Lindner's, species described in 1973.

Londt (1988) – Keyed the Afrotropical genera of Laphriinae. The taxonomic positions of *Laphystia* and *Laphyctis* were discussed and the latter name reinstated with Hull's, subgenus *Laphystiella* being a synonym. *Note*: Being unaware of Oldroyd's, (1980) error in listing *albicans* under both *Laphystia* and *Laphystotes*, *albicans* was incorrectly transferred to *Laphyctis* along with Lindner's, Namibian species.

Geller-Grimm (2004) – In cataloguing world genera, lists *Laphyctis* as a valid genus, but incorrectly with *Laphystiella* as a subgenus.

Özdikmen (2006) – Reported that Oldroyd's, *Prytania* was a junior homonym of the genus *Prytania* Debauche, 1938 (Lepidoptera: Erebidae: Arctiinae) and provided a replacement name – *Prytanomyia*.

Londt and Dikow (2017a) – Revised *Prytanomyia* after discovering that Lindner's, *Laphystia kochi* was identical to Oldroyd's, *albida* and that it was not a *Laphyctis*.

At the commencement of this study there were, therefore, only two designated species of *Laphyctis* – the type species *gigantella* (Loew, 1852) and *orichalcea* (Lindner, 1973). Field work by the junior author in Namibia in 2012, where one of the new species described below as well as specimens of *Prytanomyia* were collected, instigated a closer look at the current knowledge and with the accumulation of 200 specimens in various collections there is an excellent basis for a revision of this distinctive genus.

## Materials and methods

Terminology follows mainly that proposed by McAlpine (1981), Wootton and Ennos (1989, wing venation), Stuckenberg (1999, antenna), Dikow (2009), Cumming and Wood (2017) and Londt and Dikow (2017b). Specimens available for study are housed in the following institutions: The Natural History Museum, London, U.K. (BMNH); personal collection of Fritz Geller-Grimm, Frankfurt a.M., Germany

(COGG); personal collection of Eric Fisher, El Dorado Hills, CA, U.S.A. (COEF); National Museum, Nairobi, Kenya (NMKE); National Museum of Namibia, Windhoek, Namibia (NMNW); KwaZulu-Natal Museum, Pietermaritzburg, South Africa (NMSA); Iziko South African Museum, Cape Town, South Africa (SAMC); Staatliches Museum für Naturkunde Stuttgart, Stuttgart, Germany (SMNS); National Museum of Natural History, Washington, DC, U.S.A. (USNM); Museum für Naturkunde, Berlin, Germany (ZMHB).

Label data are usually cited as they appear on labels, lines of data being separated by a slash (/). Unique specimen identifiers, when available, are provided in brackets following the appropriate specimens. While more recently collected material is frequently provided with detailed information relating to locality and habitat, it has been necessary to attempt to establish reasonably accurate geographic coordinates for older or relatively poorly documented specimens in order to gain a better appreciation of distribution and Google Earth has been used to accomplish this. Information not appearing on labels is provided in square brackets. For illustration, wings were removed, placed in alcohol and flattened between glass microscope slides for photography before being reattached by means of clear nail polish. Terminalia were excised and macerated in hot Potassium Hydroxide (KOH), drawn with the aid of a drawing tube before being stored in a micro vile attached to the specimen's, pin. Wing measurements are given as the mean and length is measured from humeral crossvein to tip and breadth at widest level. The segmental length ratios of the antenna are given as scape (as 1): pedicel: postpedicel: stylus.

The distribution map includes Biodiversity Hotspots *sensu* Conservation International (Mittermeier 1998; Myers et al. 2000; Mittermeier et al. 2005). The specimen occurrence data are deposited as a Darwin Core Archive (DwC-A) in the Global Biodiversity Information Facility (GBIF) using the Integrated Publishing Toolkit (IPT) at the NMNH. The dichotomous, interactive key has been built with Lucid Phoenix and can be accessed on Lucidcentral and the junior author's, research web-site.

## Data resources

GBIF: specimen occurrence data-set – 6f6da8ae-e270-49e0-b0b4-5ea7c968f9da – https://doi.org/10.15468/mgzpdj.

Lucid Phoenix: illustrated, dichotomous identification key – keys.lucidcentral.org/keys/phoenix/laphyctis/.

Morphbank: image collection ID – 861204.

SimpleMappr: distribution map – 9287 (as in Fig. 56) – Google Earth KML file 9287.

Updated key to Afrotropical Asilidae genera (see Discussion):

online – keys.lucidcentral.org/keys/phoenix/Afrotropical_Asilidae_genera/

PDF-format – https://doi.org/10.6084/m9.figshare.5977690

## Results

### Taxonomy

#### *Laphyctis* Loew, 1858

http://zoobank.org/A79F63D9-2069-45EF-8151-49BA40046517

*Laphyctis* Loew, 1858: 338 [1860: 159]. Type species: *Stichopogon gigantella* Loew, 1852, by monotypy. [reinstated by Londt 1988: 513]
*Laphystia* (*Laphystiella*) Hull, 1962: 76. Type species: *Laphystia argenteofasciata* Engel, 1929.

**Diagnosis** (based primarily on key characters used by Londt and Dikow (2017b)): *Head*: antennal stylus without long setulae; postpedicel much longer than scape and pedicel combined; scape less than twice as long as pedicel; mystax includes strong macrosetae largely restricted to ventral facial margin; frons approximately the same width at level of antennal insertion and vertex or only slightly diverging; compound eye more or less oval or posterior margin slightly sinuate in ventral quarter; face as wide or wider than width of one eye; anterior tentorial pits small, slit-like, inconspicuous ventrally.

*Thorax*: prosternum fused to proepisternum; thoracic macrosetae obvious and moderately well-developed; anepisternum without obvious strong macroseta on supero-posterior angle. *Wing*: $R_{2+3}$ ending in C, cell $r_1$ thus open on wing margin; cell $r_5$ open or closed; cell $m_3$ closed; alula usually well-developed. *Legs*: prothoracic tibia without any spine-like tibial processes (macrosetae may be present); pulvilli well-developed (as long as or a little shorter than claws).

*Abdomen*: abdominal tergite 2 less than four times as long as wide; sternite 1 confined beneath tergite 1; abdominal macrosetae obvious and moderately well-developed; male terminalia with distinct macrosetae on distal margin of gonocoxite (Fig. 41); female terminalia simple (T10 never divided and without acanthophorite spines).

#### *Laphyctis argenteofasciata* (Engel, 1929), comb. n. & stat. rev.

http://zoobank.org/EFBA7759-703D-43B3-ACA6-0EB7DA20E42E
Figs 7–17, 23, 56

*Laphystia argenteofasciata* Engel, 1929: 162 (Fig. 8 antenna).
*clausicella* Engel, 1929: 162 [unavailable name first published as a synonym of *argenteofasciata*].
*Laphystia* (*Laphystiella*) *argenteofasciata*: Hull 1962: 76.
*Laphystia argenteofasciata* (sic): Lindner, 1973: 76.
*Laphystia gigantella* Loew, 1852: Lindner, 1973: 85.
*Laphystia gigantella* Loew, 1852: Oldroyd, 1974: 103; 1980: 352.

**Taxonomy.** There has been some confusion surrounding *Laphystia argenteofasciata* Engel, 1929 which was synonymised with *Laphystia gigantella* Loew, 1852 by Oldroyd (1974) and this synonymy was hinted at by Lindner (1973: 85). Engel (1929) based his description on three female specimens, one from 'Brit. E. Africa, Marstbed' and two from 'Saw Mills, S. Rhodesia'. We have studied two specimens from Marsabit (Kenya) which are, with little doubt, those seen by Engel. Apart from Engel's, misspelling of Marsabit, one specimen is actually a male. Based on a study of these Kenyan specimens we believe the species to be valid, and so it is here reinstated and allocated to *Laphyctis*. Engel (1929) did not designate types and so his material from Kenya and Zimbabwe must be considered syntypes. We have not seen Engel's, Zimbabwean specimens from Sawmills, which are unlikely to be conspecific with the Kenyan specimens examined, and so we here designate the Kenyan male as lectotype (unique identifier NHMUK010624209) and the female as paralectotype (NHMUK010624209). Decisions regarding Engel's, Zimbabwean specimens, the repository of which is not known to us, will have to be deferred to a future date. We have contacted staff at the Zoologische Staatssammlung in Munich (ZSMC), but did not obtain any information. There are two specimens of *L. gigantella* collected on 26 December 1919 at Sawmills in the BMNH that potentially could represent the specimens listed by Engel. Lindner (1973) recorded two males, identified as this species, from 'Gobabeb. 2.–9.II.1970' (page 76) and later, in the same paper, three females, identified as *gigantella* (page 85), from the same collecting event. We have located this material in the SMNS and identified it as *L. eremia* sp. n. (see below).

**Redescription.** Based on all available material. General appearance as in Figs 7–12.

*Head*: Red-brown, but colour masked by strong gold-silver and silver-gold pruinescence, shiny white and pale yellow to orange setose. *Antennae*: variable, dark red-brown to orange, fine gold-silver pruinose, especially scape. Scape red-brown or yellowish, strongly pale yellow setose ventrally. Pedicel variable red-brown to orange, only a few small setae distally. Postpedicel orange proximally, red-brown distally, with narrow terminal cup-shaped style, opening somewhat oblique and enclosing a spine-like sensory element. Segmental length ratios = 1: 1.0: 2.3: 0.4. Face orange to dark red-brown, but colour masked by strong gold-silver pruinescence. Width of one eye: face ratio = 1: 1.1 (face slightly wider than width of 1 eye). Face projecting ventrally (Fig. 17), profile slightly convex, epistomal margin smoothly rounded distally (not pointed). Mystacal macrosetae moderately long, yellow to pale orange accompanied by shorter yellow and white setae. Mystax extending onto dorsal half of face. Frons and vertex dark red-brown, colour entirely masked by bright gold-silver pruinescence, fine pale yellow-white setose. Ocellar tubercle fine pale yellow setose (no macrosetae). Postocular (occipital) region dark red-brown, colour entirely masked by gold-silver and silver-gold pruinescence. Occiput with curved rows of *c.* 8 short, pale yellow macrosetae dorsally and many fine white setae, mostly ventrally. Palpi dark red-brown, 2-segmented, white setose. Proboscis straight, shiny dark red-brown, fine white setose proximally and distally.

*Thorax*: Red-brown to orange, uniformly strongly gold-silver pruinose, pale yellow and fine white setose. Pronotum orange-brown, gold-silver pruinose, fine white setose. Mesonotum red-brown to orange, entirely fine silver-gold pruinose, uniformly fine shiny yellow microsetose except for moderately developed, yellow to orange lateral macrosetae (1 npl, 2 spal), pal setae absent. Scutellum dark red-brown, entirely fine silver-gold pruinose. Discal scutellar setae yellow, apical scutellar setae absent. Pleura red-brown to orange, entirely gold-silver pruinose, fine white and pale yellow setose. Katatergal macrosetae poorly developed, pale yellow. Anatergites uniformly strongly gold-silver pruinose, asetose. Postmetacoxal area membranous. *Legs*: Coxae orange-brown, gold-silver pruinose, white and pale yellow setose. Femora dark red-brown with orange-brown distal and proximal areas. Tibiae yellow-brown proximally, dark red-brown distally. Tarsi dark red-brown. All leg setae pale yellowish. Claws well-developed, dark red-brown with brown-orange basal parts. Empodium dark red-brown, straight, slightly longer than claws. Pulvilli pale orange, well-developed. *Wings* (Fig. 23): ♂ (3) 6.9 × 2.4 mm, ♀ (5) 7.7 × 2.7 mm (females slightly bigger than males – *note*: some specimens in poor condition with tatty margins). Venation: Marginal cells open except for $r_5$, $m_3$, and cua, which are closed and stalked. Veins yellow to brown, membrane unstained, transparent, almost entirely microtrichose. Cell cup with weakly developed bordering vein (C) and microsetae. Alula well-developed, largely lacking bordering vein and microsetae.

*Abdomen*: Dark red-brown to orange, gold-silver pruinose, entirely pale yellow setose, macrosetae pale yellow. Tergites (T1–6 well-developed and clearly evident, others reduced and hidden from view below T6) red-brown, entirely pale yellow microsetose, strongly silver-gold pruinose posterolaterally, weakly pruinose anteromedially. T1–6 with pale yellow medial macrosetae (may be absent on T6 in males). Sternites dark red-brown, fine pale yellow setose, dull gold pruinose.

*Male terminalia* (Figs 13–15): Genital bulb rotated clockwise through approximately 180°. T7–8 and S7–8 reduced and poorly defined. Epandrium large, almost twice as long as broad, bilobed in distal quarter, lobes distally somewhat truncated in dorsal view (Fig. 13). Proctiger moderately well-developed, projecting to similar level attained by epandrial lobes. Hypandrium poorly defined, subtriangular in ventral view, appearing as long as wide (Fig. 15), terminating at a point where opposing gonocoxites almost meet midventrally. Gonocoxites well-developed, approximately as broad and a little more than half as long as epandrium in lateral view, long, densely arranged macrosetae on distal margin of gonocoxite. Gonostyli moderately well-developed, subdivided at base into two lobes, a slender dorsal lobe, tapering gradually to a darkly sclerotized tip, and a stronger ventral lobe possessing a straight basal region and distal club-like end bearing a black seta-like spine. Phallus complex in structure, with a relatively slender basal region leading to a relatively large, terminal bulb tipped with three small prongs.

*Female terminalia* (Fig. 16): Relatively broad and dorsoventrally flattened. Segments 1–6 well-developed, segments 7–8 reduced. Subgenital plate moderately well-

developed, broader than long, with undulating distal margin (median lobes with somewhat square distal margins).

**Type material. Lectotype Kenya: Marsabit:** 1♂ lectotype '*Laphystia* / *clausicella* / Type. Herm. [gray]', 'Pres. By / Imp. Bur. Ent. / Brit. Mus. / 1923-58', 'Brit. E. Africa. / Marsabit. [*c.* 2°20'08"N, 37°59'40"E 1350m] / Oct 1911 / Capt. C. A. Neave', 'Paratype / *Laphystia* / *argenteofasciata* Engel / not conspecific with type / det. J. E. Chainey, 1984', 'NHMUK010624209' (BMNH).

**Paralectotype** 1♀ paralectotype – same data as lectotype, NHMUK010624212 (BMNH).

**Additional material examined. Kenya: Turkana:** 1♂ 'Lokichar [*c.* 02°23'02"N, 35°38'52"E 767m] / Turkana / Kenya / 31/3/54', '*Laphystia* Leow [sic] / Looks like … sp. / *clausicella* of Hermann [poor handwriting difficult to decipher]', '*Laphystia* / *clausicella* Engel / (Hermann in lit.) / det. H. Oldroyd. 1962' 'NHMUK010624210' (BMNH); 1♀ 'Lokichar / Turkana / Kenya / 31/3/54', 'NHMUK010624205' (BMNH); 1♀ 'Lokichar / Turkana / Kenya / 31/3/54', 'NHMUK010624222' (BMNH); 1♀ 'Loiyapuya [also Naoiyapua *c.* 02°24'22"S, 35°27'29"E 673m] / Turcana / 28/3/54', 'NHMUK010624218' (BMNH); **Kitui:** 1♂ 2♀ 'Kenya, Eastern Prov. / Base of Ukasi Hill / 613m. 0.82103°S, / 38.54443°E [*c.* 0°49'16"S, 38°32'40"E]', 'Malaise trap. *Acacia* / *Commiphora* savanna / 21 Nov–5 Dec 2011 / R. Copeland' (NMKE); 17♂ 3♀ 'Kenya, Eastern Prov. / At Athi River / 2°38.51'S, 38°21.98'E [02°38'31"S, 038°21'59"E] / 8–15. XI.1999, Malaise / trap, R. Copeland' [USNMENT01088422–26, 29, 31–37, 43, 51, 58, 64, USNMENT01088518 [17♂], USNMENT01088421, 23, 78 [3♀]] (USNM); 1♂ 3♀ 'Kenya, Eastern Prov. / At Athi River / 2°38.51'S, 38°21.98'E / 25.X.–1.XI.1999, Malaise / trap, R. Copeland' [USNMENT01088496 [♂], USNMENT01088051, 55, 60 [3♀]] (USNM); 36♂ 6♀ 'Kenya, Eastern Prov. / At Athi River, Malaise trap, / 22–29.XI.1999 / 2°38.51'S, 38°21.98'E / R. Copeland' [USNMENT01088369, 81, USNMENT01096577, 78, 80–82, 84, 86–88, 90, 93, 95–96, 98, USNMENT01096603, 09, 12, 83, USNMENT01096700–01, USNMENT01096801, 08–10, 14–16, 18–19, 24, 28–29, 35, 78 [36♂], USNMENT01088476, USNMENT01096617, USNMENT01096711, USNMENT01096806, 12, 17 [6♀]] (USNM); 3♂ 2♀ 'Kenya, Tsavo East Nat. / Park, near Athi River / 2°38.51'S, 38°21.98'E [02°38'31"S, 038°21'59"E] / Malaise trap, 7–11.xii.98 / R. Copeland' [USNMENT01088126 & 28 [2♀], USNMENT01088127 & 30 & 33 [3♂]] (USNM); 1♂ 1♀ 'Kenya, Tsavo East Nat. / Park, near Athi River / 2°38.51'S, 38°21.98'E / Malaise trap, 14–18.xii.98 / R. Copeland' [USNMENT01088125 [♂] 32 [♀]] (USNM); 1♀ 'Kenya, Tsavo East Nat. / Park, near Athi River / 2°38.51'S, 38°21.98'E / Malaise trap, 28.xii.98– / 1.i.99 / R. Copeland' [USNMENT01088129] (USNM); 2♀ 'Kenya, Tsavo East Nat. / Park, near Athi River / 2°38.51'S, 38°21.98'E / Malaise trap, 21–25.xii.98 / R. Copeland' [USNMENT01088131 & 34] (USNM); **Isiolo:** 1♂ 'Samburu Nat. Res. / KENYA / Samburu Serena [00°34'04"N, 037°31'24"E] / Stone foot path / 11.X.96, R. Copeland' [USNMENT01097752] (USNM).

**Additional material not examined by authors. Kenya: Kitui:** 1♂ 'Kenya, Eastern Prov. / Base of Ukasi Hill / 613m. 0.82103°S, / 38.54443°E', 'Malaise trap. *Acacia*/

/ *Commiphora* savanna / 7–21 Nov 2011 / R. Copeland' (NMKE); 1♀ 'Kenya, Eastern Prov. / Simisi area / 653m, 2.01477°S / 38.32618°E' [*c.* 2°00'53"S, 38°19'34"E], 'Malaise trap, shrubland / nr. Kwandula Hill / 1–4 Dec 2013 / J. Bukhebi and R. Copeland' (NMKE).

**Distribution, biodiversity hotspots, phenology and biology.** Widely distributed in Kenya, where the species straddles the equator (Fig. 56). A commonly collected species over a long period of time (Table 1). Not known to occur in any biodiversity hotspot (*note:* the central Kenyan locality (Samburu, 00°34'04"N, 037°31'24"E, Fig. 56) does not lie within the Eastern Afromontane biodiversity hotspot). Collected from October through to March (one record in January (Malaise Trap emptied on 1 January 1999) and none in February) (Table 2). Virtually nothing is known of the biology, but a few specimens, all Malaise trapped at four localities by R. Copeland, have data relating to the habitat occupied. It appears that the species favours '*Acacia Commiphora* savanna'. The Kwandula Hill habitat is similar to Ukasi, but perhaps somewhat less hot with dry, deciduous shrubland (R. Copeland, pers. comm.).

***Laphyctis eremia* sp. n.**

Figs 3–5, 18, 24, 28–33, 41, 56

http://zoobank.org/FBF70CB1-4D82-429E-A6B6-A219396E816C

**Etymology.** Gr. *eremia* – desert, wilderness. Refers to the habitat occupied by the species.

**Description.** Based on all available material. General appearance as in Figs 28–33.

*Head*: Dark red-brown to black, but colour masked by strong gold-silver pruinescence, shiny white and pale yellow setose. *Antennae*: mostly dark red-brown, fine silver pruinose, especially scape. Scape strongly pale yellow setose ventrally. Pedicel almost asetose, only a few tiny setae distally. Postpedicel with broad terminal cup-shaped style, opening oblique and enclosing a spine-like sensory element. Segmental length ratios = 1: 0.7: 2.2: 0.4. Face dark red-brown to black, but colour masked by strong gold-silver pruinescence (except for extreme lateral margins of epistomal margin). Width of one eye: face ratio = 1: 0.94 (face slightly narrower than width of 1 eye). Face projecting strongly ventrally, epistomal margin medially distinctly pointed, facial profile plane (Fig. 18). Mystacal macrosetae shiny pale yellow, confined to narrow band along lower facial margin, not extending beyond ventral quarter of face. Dorsal region of face fine white setose. Frons and vertex dark red-brown to black, colour masked by dull gold-silver pruinescence, fine white setose. Ocellar tubercle fine white setose (no macrosetae). Postocular (occipital) region dark red-brown to black, colour masked by strong gold-silver pruinescence. Occiput with rows of *c.* 7 short, pale yellow macrosetae dorsally and many fine, shiny white setae, mostly ventrally. Palpi dark red-brown, 2-segmented, fine white setose. Proboscis straight, shiny dark red-brown to black, fine white setose proximally and distally.

*Thorax*: Dark red-brown to black, uniformly strongly gold-silver and silver pruinose, pale yellow and fine white setose. Pronotum dark red-brown, silver pruinose, fine white setose. Mesonotum dark red-brown, entirely gold-silver pruinose, uniformly fine shiny

**Table 1.** Collecting event summary for *Laphyctis* species. The holotype of *L. gigantella* has no collecting year and was collected prior to 1852.

| Species | # specimens | # collecting events | earliest collection | most recent collection |
|---|---|---|---|---|
| *argenteofasciata* | 88 | 12 | 1911 | 2013 |
| *eremia* sp. n. | 92 | 28 | 1923 | 2012 |
| *gigantella* | 9 | 7 | (prior to 1852) 1895 | 1919 |
| *iota* sp. n. | 4 | 1 | 1974 | 1974 |
| *orichalcea* | 6 | 5 | 1969 | 1990 |
| *Laphyctis* sp. | 1 | 1 | 1926 | 1926 |

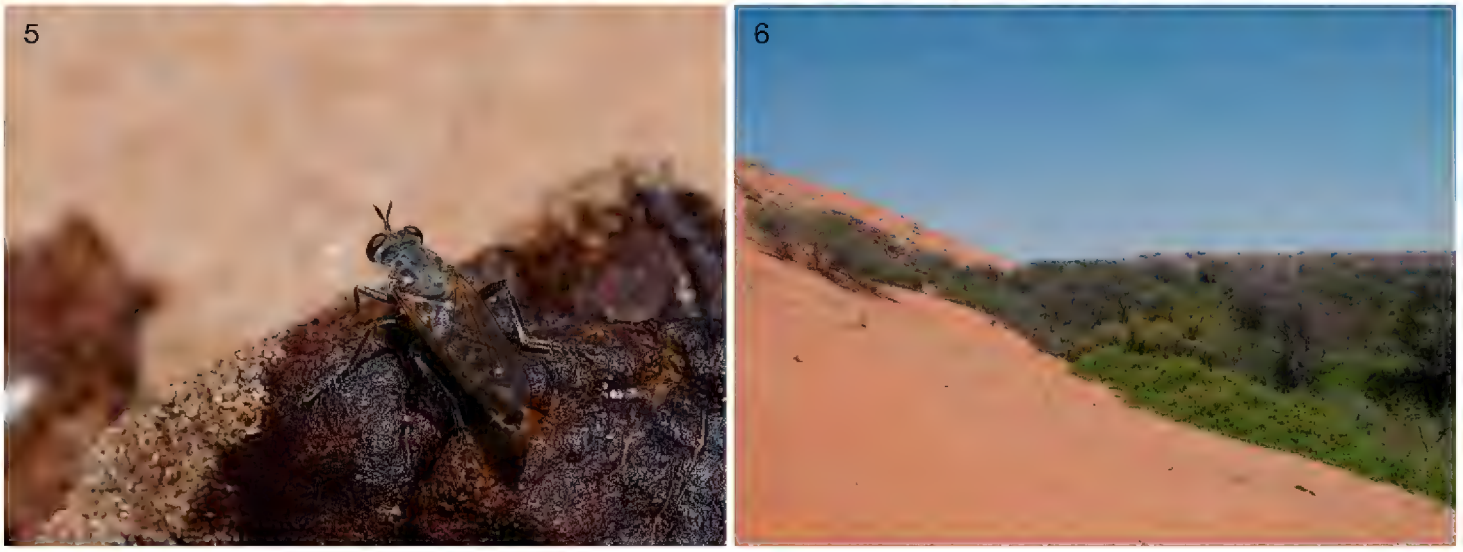
**Table 2.** Phenology of *Laphyctis* species through number of specimens collected in each month. Months abbreviated starting with July.

| Species | J | A | S | O | N | D | J | F | M | A | M | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *argenteofasciata* | - | - | - | 7 | 66 | 11 | - | - | 4 | - | - | - |
| *eremia* sp. n. | - | - | - | - | - | 13 | 55 | 24 | 2 | 1 | - | - |
| *gigantella* | - | - | - | - | 1 | 5 | 2 | - | - | - | - | - |
| *iota* sp. n. | - | - | - | - | - | - | 4 | - | - | - | - | - |
| *orichalcea* | - | - | - | - | - | - | 1 | 5 | - | - | - | - |
| *Laphyctis* sp. | - | - | - | - | - | 1 | - | - | - | - | - | - |
| Total | - | - | - | 7 | 67 | 30 | 62 | 29 | 6 | 1 | - | - |

yellow-white microsetose except for moderately developed, yellow lateral macrosetae (1 npl, 3 spal), pal setae absent. Scutellum dark red-brown to black, entirely fine gold-silver pruinose. Discal scutellar setae fine yellow, apical scutellar setae absent. Pleura dark red-brown to black, entirely silvery pruinose, fine white setose. Katatergal macrosetae moderately developed, fine white. Anatergites uniformly strongly silver pruinose, asetose. Postmetacoxal area membranous. *Legs*: Fairly uniform dark red-brown to black, proximal ends of femora and tibiae at least partly orange-brown, shiny white to pale yellow setose. Coxae fine silver pruinose. Claws well-developed, black with brown-orange basal parts. Empodium red-brown, straight, slightly longer than claws. Pulvilli pale yellow, well-developed. *Wings* (Fig. 24): ♂ (8) 9.0 × 3.4 mm, ♀ (15) 9.2 × 3.4 mm (females on average slightly larger than males). Venation: All marginal cells open except for $m_3$ and cua, which are closed and stalked. Veins yellow-brown to brown, membrane unstained, transparent, microtrichose (except for small parts of some basal cells). Cell cup with weak bordering vein (C) and microsetae. Alula well-developed, lacking bordering vein and microsetae.

*Abdomen*: Dark red-brown to black, fine white and yellow microsetose, macrosetae yellow-white, gold-silver and silver pruinose. Tergites (T1–6 well-developed and clearly evident, others reduced and hidden from view below T6) dark red-brown to black, anteriorly yellow microsetose, gold-silver pruinose, posteriorly white microsetose, silver pruinose. T1–6 with pale yellow-white medial macrosetae (in ♂ T6 is usually without medial macrosetae). Sternites red-brown, fine white setose, silver pruinose.

*Male terminalia* (Figs 34–36): Genital bulb rotated clockwise through approximately 180°. T7–8 and S7–8 reduced and poorly defined. Epandrium large, almost


**Figures 1–6.** Habitats and photographs of *Laphyctis eremia* sp. n.: **1** dry Kuiseb riverbed at Gobabeb, Namib Desert, Namibia (23°33'35"S, 015°02'06"E) **2** view south over dry Kuiseb riverbed and Gobabeb Research & Training Centre from high dune **3–5** ♂ perching on dung in dry Kuiseb riverbed as shown in 1 (Morphbank #861457, 861459, 861461) **6** slope of high dunes at Homeb, Namib Desert, Namibia (23°38'34"S, 015°10'55"E) where *L. eremia* sp. n. was collected on the dunes.

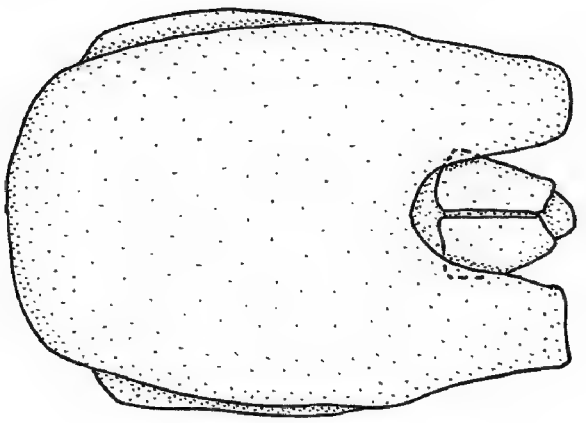
twice as long as broad in dorsal view, bilobed in distal quarter, tips of lobes somewhat pointed (Fig. 34). Proctiger short, deep, projecting only slightly beyond distal epandrial lobes. Hypandrium poorly defined, margins difficult to appreciate, especially in lateral view, weakly sclerotized, subcircular in ventral view (Fig. 36), slightly longer than wide, terminating at a point where opposing gonocoxites almost meet midven-


**Figures 7–12.** *Laphyctis argenteofasciata*: ♂ (USNMENT01088130) **7** dorsal (Morphbank #861210) **8** same, lateral (#861212) **9** same, head anterior (#861214), ♀ (USNMENT01088126) **10** head anterior (#861222) **11** same, dorsal (#861218) **12** same, lateral (#861220). Scale = 5 mm.

trally. Gonocoxites well-developed, in lateral view approximately as broad and a little more than half as long as epandrium, broadly rounded distally, long, densely arranged macrosetae on distal margin of gonocoxite. Gonostyli subdivided at base into two lobes, a dorsal lobe, bent at almost 90° near its base which tapers gradually to a small down-curved distal tip, and a strong ventral lobe that has a straight basal region tipped by a down-curved terminal hook. Phallus with a slender basal region tipped with a relatively large, terminal, subtriangular bulbous head that is down-curved distally.

*Female terminalia* (Fig. 37): Relatively broad and dorsoventrally flattened. Segments 1–6 well-developed, segments 7–8 reduced. Subgenital plate moderately well-developed, almost twice as broad as long, with uniquely undulating, trifurcate distal margin.

13



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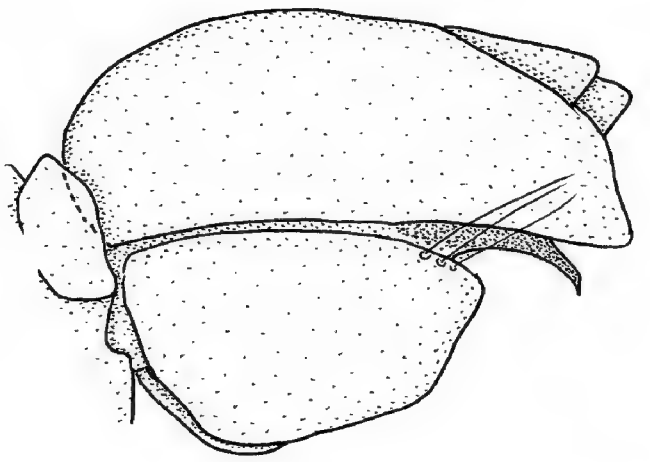

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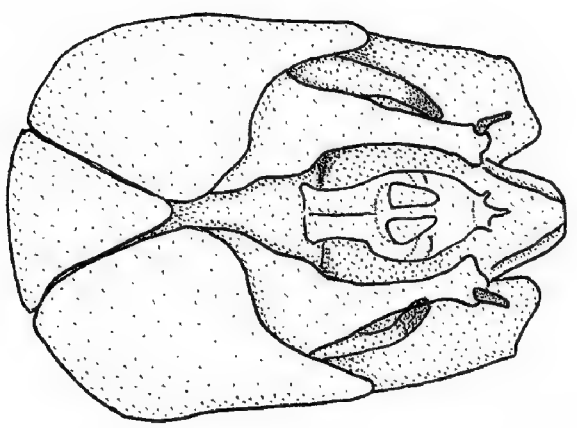

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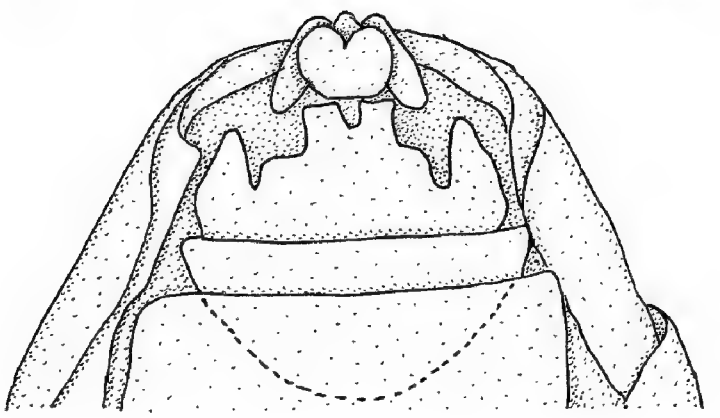
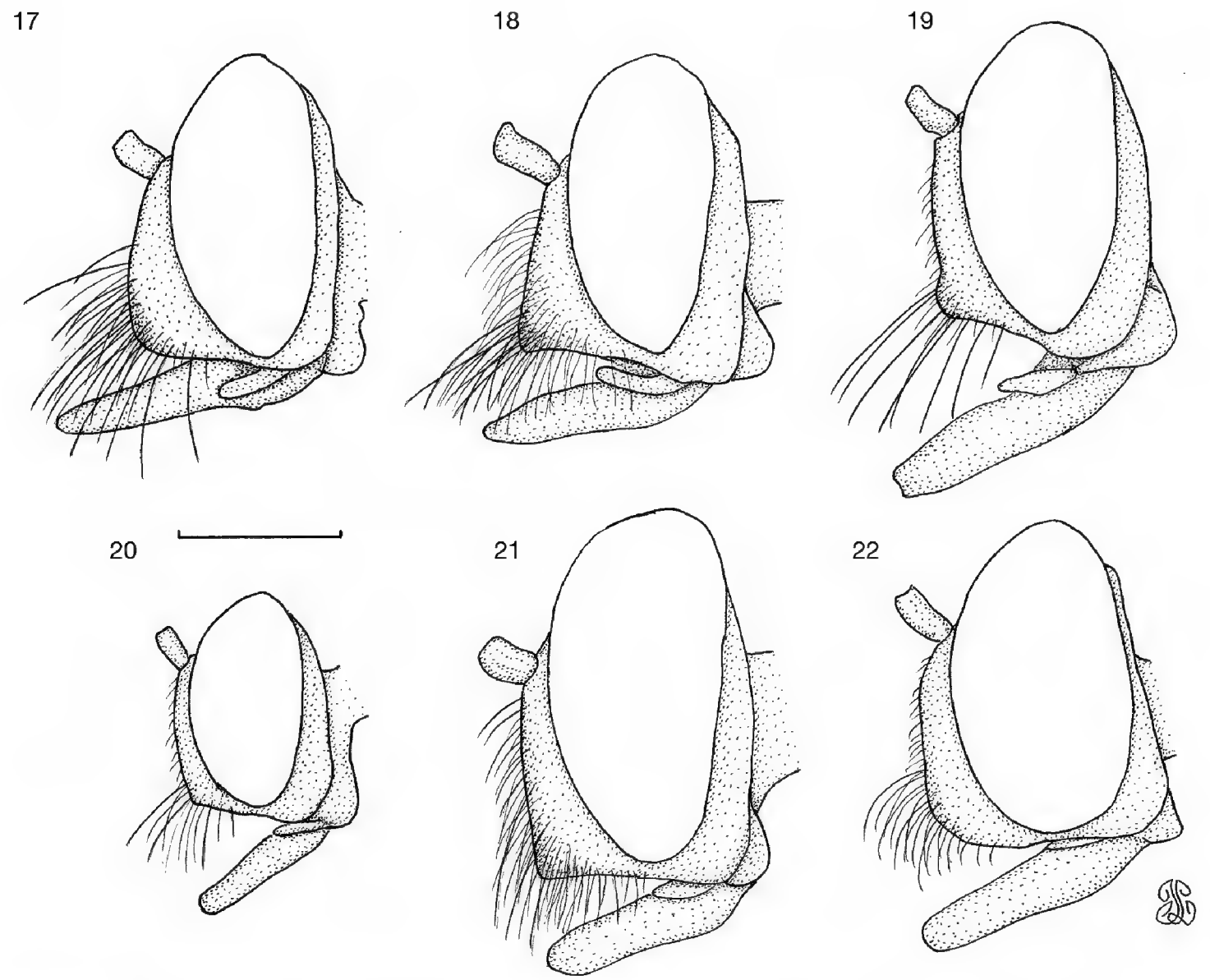


**Figures 13–16.** *Laphyctis argenteofasciata* (Ukasi) terminalia: **13** male dorsal **14** same, lateral **15** same ventral **16** female ventral. Scale = 1 mm, setation omitted.

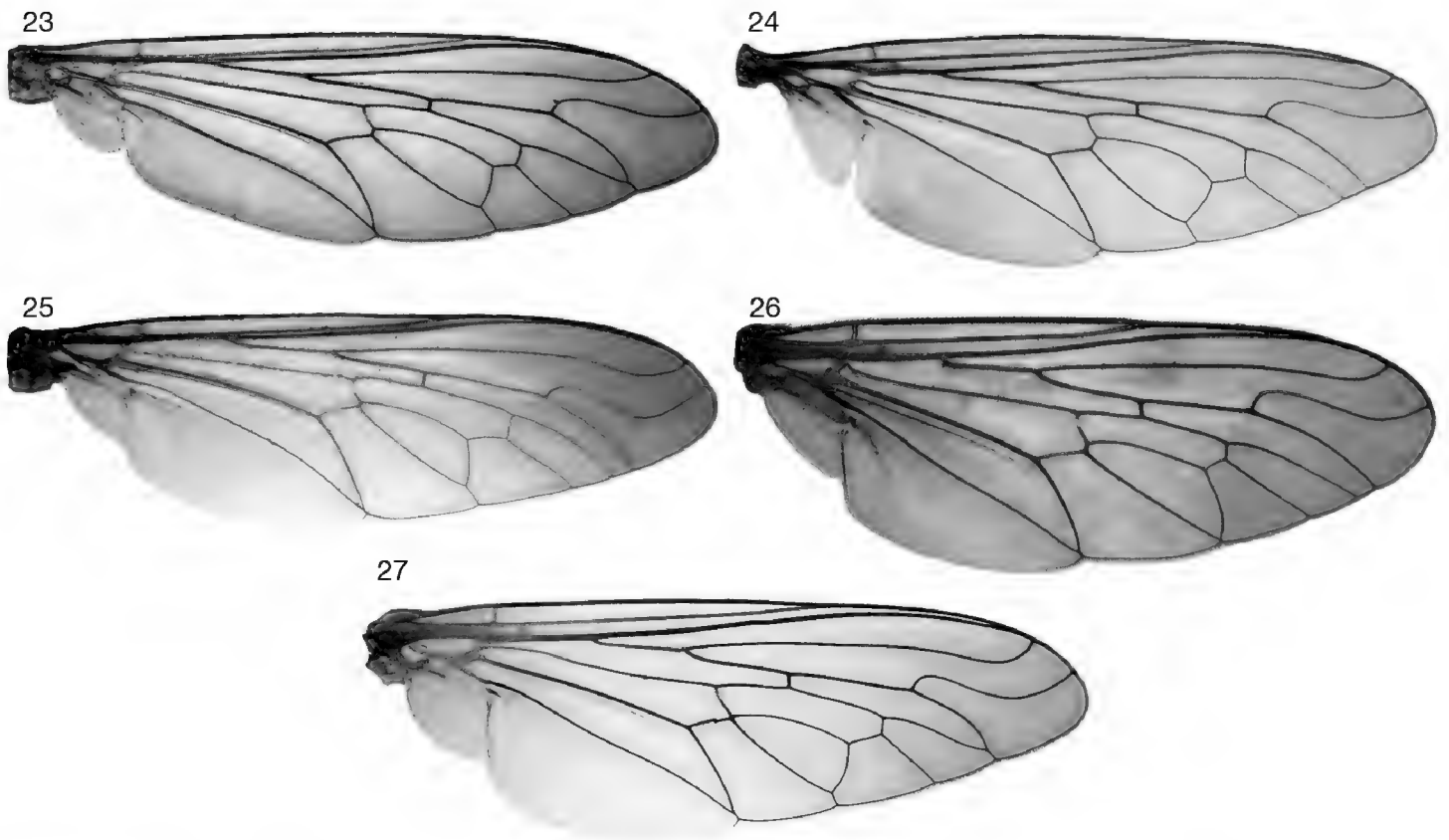
**Type material. Holotype**. **Namibia: Erongo:** 1♂ holotype 'Namibia: Erongo: Namib-Skeleton / Coast National Park, Gobabeb, / Kuiseb riverbed, dry, open, sandy / riverbed, perching on sand, 23°33'35"S, / 015°02'06"E, 389 m, 05.ii.2012, / T. Dikow', '*Laphyctis* / sp. / det. T. Dikow 2012', USNMENT00832227' (NMNW).

**Paratypes. Angola: Namibe:** 1♂ 'Angola (A11) / Bruco. [*c.* 15°07'00"S, 13°11'00"E 738m] 26.ii - / 2.iii.1972', 'Southern / African Exp. / B.M. 1972-1', 'NHMUK010624214' (BMNH). **Namibia: Kunene:** 3♂1♀ 'Khowarib Schlucht / SE 1913Bd [Khowarib Lodge *c.* 19°15'35"S, 13°52'38"E 690m] / 15-i-1980 / Univ. v. Pretoria' [NSMA-DIP-71759–61 (♂), NSMA-DIP-71758 (♀)] (NMSA); 2♂ 'Anabis Farm [*c.* 20°00'08"S, 14°38'33"E]/ 2114BA S.W.A. / 22.2.1969 / B. Lamoral' [NSMA-DIP-07851, 71768]; 1♂ 5♀ 'South West Africa 2014Dd / Damaraland nr. Rooipoort / Farm at Ugab River [*c.* 20°51'31"S, 14°57'33"E], 600m / 6.ii.1974 ME & BJ Irwin / Sandy river bottom' [ID Fisher] [NSMA-DIP-07844 (♀), NSMA-DIP-71762–5 (♀), 71766 (♂)]; 1♂ 'Ugab Riv. Bridge [*c.* 21°09'50"S, 13°39'54"E 20m] / 2213BA S.W.A. / 19.2.1969 / B. Lamoral' [ID Oldroyd] [NSMA-DIP-71767]; **Erongo:** 1♂ 'S. W. Africa (29) / Kahn River, 5 mls. / N. Usakos [*c.* 21°56'10"S, 15°41'29"E 1043m] / 30–31.i.1972', 'Southern / African Exp. / B.M. 1972-1', '*Laphystia* / *gigantella* Loew / det. H. Oldroyd 1973','NHMUK010624208' (BMNH); 1♀ 'S. W. Africa (29) / Kahn River, 5 mls. / N. Usakos / 30–31.i.1972', 'Southern / Af-




**Figures 17–22.** Illustrations of head profiles of *Laphyctis* species: **17** *L. argenteofasciata* (Ukasi ♂) **18** *L. eremia* sp. n. (Gobabeb ♂) **19** *L. gigantella* (Sawmills ♀) **20** *L. iota* (Kruger Park ♀) **21** *L. orichalcea* (Brandberg ♂) **22** *Laphyctis* sp. (Sawmills ♀). Scale = 1 mm.

rican Exp. / B.M. 1972-1', 'NHMUK010624217' (BMNH); 1♂ 'S. W. Africa (28) / Goanikontes [*c.* 22°40'06"S, 14°49'04"E 157m], 21 mls. / E. Swakopmund / 30.i.1972', 'Southern / African Exp. / B.M. 1972-1', 'NHMUK010624207' (BMNH); 2♂ 1♀ 'S. W. Africa (22); / Kuiseb Canyon. / 23 18'S, 15 45'E [*c.* 23°17'59"S, 15°45'32"E 770m] / 22–23.i.1972', 'Southern / African Exp. / B.M. 1972-1', 'NHMUK010624206 & 13 [2♂] & 15 [1♀]' (BMNH); 5♂ 9♀ 'South West Africa 2315Ca / Namib Desert Park, Kuiseb / River at Gobabeb [*c.* 23°33'50"S, 15°02'24"E 395m], 400m / 12.ii.1974 ME & BJ Irwin / Riverine forest and sand' [ID Fisher] [NSMA-DIP-07857 (♂), 71769–81]; 1♂ 2♀ 'Namibia: Erongo: Namib-Skeleton / Coast National Park, Gobabeb, / Kuiseb riverbed, dry, open, sandy / riverbed, perching on sand, 23°33'35"S, / 015°02'06"E, 389 m, 05.ii.2012, / T. Dikow', '*Laphyctis* / sp. / det. T. Dikow 2012', USNMENT00832228 & 38 [2♀] & 29 [1♂]' (NMNW); 2♂ 5♀ 'Namibia: Erongo: Namib-Skeleton / Coast National Park, Gobabeb, / Kuiseb riverbed, dry, open, sandy / riverbed, perching on sand, 23°33'35"S, / 015°02'06"E, 389 m, 05.ii.2012, / T. Dikow', '*Laphyctis* / sp. / det. T. Dikow 2012', USNMENT00832216–17 [2♂] & 10, 20, 22, 30, 37 [5♀]' (USNM); 2♂ 'Namibia: Erongo: Namib-Skeleton / Coast National Park, Gobabeb, Kuiseb / riverbed, perching on




**Figures 23–27.** Wings of *Laphyctis* species: **23** *L. argenteofasciata* (Lokichar ♀) **24** *L. eremia* sp. n. (Gobabeb ♂) **25** *L. gigantella* (NMHUK010624226) **26** *L. iota* (Kruger Park ♀) **27** *L. orichalcea* (Otjiu ♀). Not to same scale.

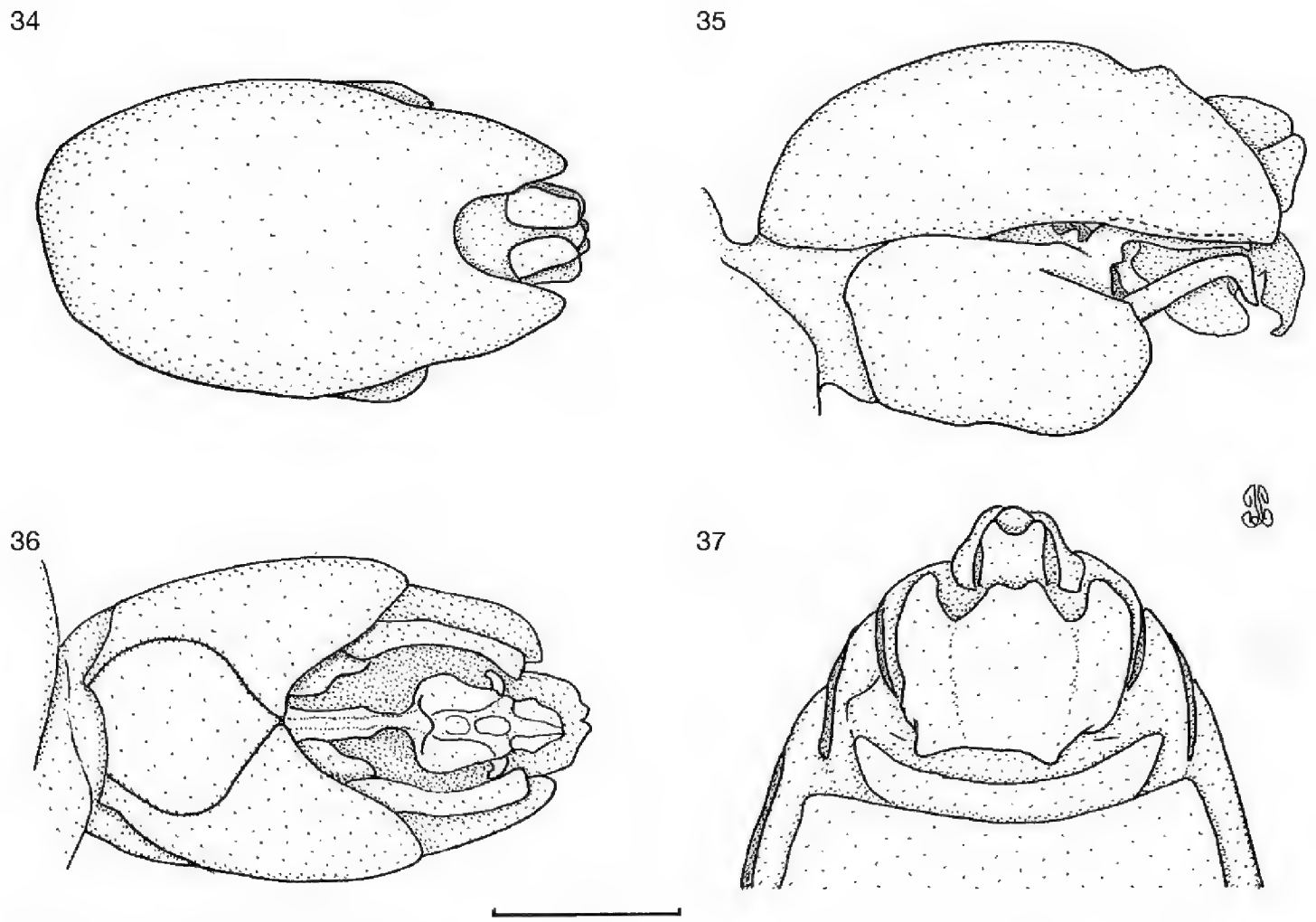
sand, 23°33'47"S, / 015°02'22"E, 396 m, 06.ii.2012, / T. Dikow', '*Laphyctis* / sp. / det. T. Dikow 2012', USNMENT00832215 & 18' (USNM); 1♂ 'S. W. Africa (23) / Homeb [*c.* 23°38'12"S, 15°10'55"E 445m], 10 mls. / ESE. Gobabeb / 23–25.i.1972', 'Southern / African Exp. / B.M. 1972–1', 'NHMUK010624220' (BMNH); 1♀ 'S. W. Africa (23) / Homeb, 10 mls. / ESE. Gobabeb / 23–25.i.1972', 'Southern / African Exp. / B.M. 1972-1', '*Laphystia* / *gigantella* Loew / det. H. Oldroyd 1973','NHMUK010624219' (BMNH); 1♂ 'Namibia: Erongo: Namib-Skeleton / Coast National Park, Homeb, on / dune, perching on sand, 23°38'34"S, / 015°10'55"E, 445 m, 06.ii.2012, / T. Dikow', '*Laphyctis* / sp. / det. T. Dikow 2012', USNMENT00832221' (USNM); 2♂ 'Namibia: Erongo: Namib-Skeleton / Coast National Park, Homeb, Kuiseb / riverbed, perching on sand, 23°38'34"S, / 015°11'21"E, 430 m, 06.ii.2012, / T. Dikow', '*Laphyctis* / sp. / det. T. Dikow 2012', USNMENT00832219 & 26' (USNM); 1♂ 2♀ 'Namibia: Erongo: Namib-Skeleton / Coast National Park, Homeb, Kuiseb / River, dense, sandy riparian woodland, /perching on sand, 23°38'24"S, / 015°10'57"E, 431 m, 06.ii.2012, / T. Dikow', '*Laphyctis* / sp. / det. T. Dikow 2012', USNMENT00832223 & 24 [2♀], 25 [1♂]' (USNM); **Otjozondjupa:** 1♂ 'Okahandja [*c.* 21°58'19"S, 16°54'23"E 1354m]. / 2–18.iii.1928.', 'S. W. Africa. / R. E. Turner. / Brit. Mus. / 1928 - 178', 'NHMUK010624227' (BMNH); **Khomas:** 1♀ 'Namibia 29.iii.1984 / 26 km N Windhoek. Road / 1/6 22 20'S:17 04'E [*c.* 1465m] / Londt & Stuckenberg / Dry stream bed *Acacia* / riparian woodland' [NSMA-DIP-07855].

**Other material examined (without type status). Namibia: Omasuti:** 1♂ 'Otjimbumbe [*c.* 17°24'S, 14°13'E 780m] / Kunene R. [river] / Mar. 1923' ~ 'S.W. Africa / Mus. Exped.' '*Laphystia* / (*Laphystiella*) / *gigantella* / ♂ Lw', 'SAM-DIP-A007990'


**Figures 28–33.** *Laphyctis eremia* sp. n.: ♂ (USNMENT00832217) **28** dorsal (Morphbank #861199) **29** same, lateral (#861201) **30** same, head anterior (#861203), ♀ (USNMENT00832224) **31** head anterior (#861195) **32** same, dorsal (#861191) **33** same, lateral (#861193). Scale = 5 mm.

(SAMC); 1♀ 'Epembe, 7km NE at / 17°33'S., 13°35'E [Epembe *c.* 17°47'13"S, 16°27'19"E 1121m] / Kaokoland / 12 Feb.' (NMNW);

**Kavango:** 1♂ 'Namibia: Kavango / 10km S Rundu / 18°00'S, 19°41'E/ 12 1 1993 / E. Marais' (NMNW); **Kunene:** 1♂ 'Khowarib Schlucht / 19°18'S; 13°55'E / Kaokoland / 22–26 Feb. 1985 / J. Irish, H. Rust' (NMNW); 1♀ 'Hoanib River [*c.* 19°28'08"S, 12°45'52"E 12m] / Skeleton Coast Park / 6 April 1979 / S. Loew, R. Wharton' (NMNW); 2♂ 'SWA / Delhi [Farm *c.* 20°20'36"S, 15°43'43"E 1008m]/




**Figures 34–37.** *Laphyctis eremia* sp. n. (Gobabeb) terminalia: **34** male dorsal **35** same, lateral **36** same ventral **37** female (Gobabeb) ventral. Scale = 1 mm, setation omitted.

2015BC / Outjo / 15 iii 1979 / VB Whitehead', 'SAM-DIP-A007991' (SAMC); **Erongo:** 2♂ 3♀ 'Gobabeb [*c.* 23°33'37"S, 15°02'26"E], 2–9.ii.1970, E. Lindner', 'AAM-011008–011012' (SMNS).

**Other material not examined (without type status).** The following material is believed to represent additional records for *eremia* sp. n. **Namibia: Omaruti:** 1? Otjimbumbe, Kunene R., 1923/03/01, SWA Museum Expedition (SAM-DIP-A014438); **Kunene:** 3♂ 6♀ Hoarusib [River] Otshu [= Otjiu *c.* 18°13'49"S, 13°16'25"E 743m], 1925/03/01, SAM Expedition (SAM-DIP-A007988); 1♂ 2♀ Warmbad [= Warmquelle *c.* 19°11'S, 13°49'E 635m], Kaokoveld, 1925/02/01, SAM Expedition (SAM-DIP-A007989); 5♂ 4♀ Cayimaeis [?], 1925/03/01, SAM Expedition (SAM-DIP-A007987); **Erongo:** 1♂ Kuiseb Canyon, Gamberg foothills, 4-V-1972, E.A. Ross (COEF).

**Distribution, biodiversity hotspots, phenology and biology.** Widely distributed in Namibia with a single record from southern Angola (Fig. 56). A commonly collected species over a long period of time (Table 1). Not known to occur in any biodiversity hotspot. Collected from December through to April (Table 2). More recently collected specimens have been found resting on sandy surfaces in dry river beds or on dunes, often associated with habitats described as *Acacia* Woodland. The Otjiu (18°13'49"S, 13°16'25"E) locality apparently harbours both *L. eremia* sp. n. and *L. orichalcea* based on two collecting events in 1985 (late February) and 1929 (early March), respectively.

There are two prey records both collected at the Kuiseb River near Gobabeb and pinned with a small homopterous bug (Cicadellidae, 1♀ NMSA-DIP-71776) and with a female *Orthactia gobabensis* (Lyneborg, 1988) (Therevidae, 1♂ USNMENT00832215).

***Laphyctis gigantella* (Loew, 1852)**
http://zoobank.org/F3A48B99-03DA-4D87-9421-99518B11ADAD
Figs 19, 25, 38, 42–45, 56

*Stichopogon gigantella* Loew, 1852: 658; 1862: 5.
*Laphyctis gigantella*: Loew 1858: 338; 1860: 88 (160) (Figs 42a wing, 42b antenna).
*Laphystia gigantella*: Lindner, 1973: 85 (see under *argenteofasciata*); Oldroyd, 1974: 103 (fig. 95 ♂ abdomen) (see under *argenteofasciata*); 1980: 352 (catalogue).

**Redescription.** Based on all available material and photographs of holotype. General appearance as in Fig. 38.

*Head*: Dark red-brown to black, but colour masked by strong silver-gold pruinescence, shiny white and yellow to pale orange setose. Antennae orange to dark red-brown, fine silver pruinose, especially scape. Scape orange, strongly pale yellow setose ventrally. Pedicel orange, asetose except for a few tiny setae distally. Postpedicel proximally orange, distally dark red-brown, with short broad terminal 2-segemented style with oblique terminal opening enclosing a spine-like sensory element. Segmental length ratios = 1: 0.8: 2.9: 0.8. Face dark red-brown to black, but colour masked by strong gold-silver pruinescence. Width of one eye: face ratio = 1: 0.94 (face slightly narrower than width of 1 eye). Face projecting ventrally, epistomal margin medially smoothly rounded, facial profile slightly convex (Fig. 19). Mystacal macrosetae shiny pale yellow to pale orange, confined to ventral quarter of face. Dorsal region of face fine white setose. Frons and vertex dark red-brown to black, colour masked by shiny gold-silver pruinescence, fine white setose. Ocellar tubercle fine white setose (no macrosetae). Postocular (occipital) region dark red-brown to black, colour masked by strong silver pruinescence. Occiput with rows of *c.* 7 short, pale yellow macrosetae dorsally and many fine, shiny white setae, mostly ventrally. Palpi dark red-brown, 2-segmented, fine white setose. Proboscis straight, shiny dark red-brown, fine white setose proximally and distally.

*Thorax*: Dark red-brown to black with some orange-brown parts, uniformly strongly silver-gold pruinose, pale yellow and fine white setose. Pronotum red-brown, silver pruinose, fine white setose. Mesonotum red-brown, entirely silver-gold pruinose, uniformly fine shiny yellow-white microsetose except for moderately developed, yellow lateral macrosetae (1 npl, 3–4 spal), pal setae absent. Scutellum red-brown, entirely fine gold-silver pruinose. Discal scutellar setae fine orange, apical scutellar setae absent. Pleura red-brown to dark red-brown, entirely silvery pruinose, fine white setose. Katatergal macrosetae poorly developed, fine white. Anatergites uniformly strongly silver pruinose, asetose. Postmetacoxal area membranous. *Legs*: Fairly uniform red-brown, proximal ends of fem-

ora and tibiae somewhat orange-brown, shiny white to pale yellow setose. Coxae strongly silver pruinose. Claws well-developed, black with brown-orange basal parts. Empodium brown, straight, as long as pulvilli. Pulvilli pale yellow, well-developed. *Wings* (Fig. 25): ♂ (2) 9.3 × 3.2 mm, ♀ (5) 10.2 × 3.8 mm (females slightly larger than males). Venation: All marginal cells open except for $m_3$ and cua, which are closed and stalked. Veins orange-brown to dark brown, membrane unstained, transparent, microtrichose (except for small sections of some basal cells). Cell cup with weak bordering vein (C) and microsetae. Alula well-developed, lacking bordering vein and microsetae.

*Abdomen*: Dark red-brown to black, fine white and yellow microsetose, macrosetae short yellow-white, silver pruinose. Tergites (T1–6 well-developed and clearly evident, others reduced and hidden from view below T6) dark red-brown to black, anteriorly yellow microsetose, fine gold-silver pruinose, posteriorly white microsetose, silver pruinose. T1–6 with pale yellow-white medial macrosetae. Sternites red-brown, fine white setose, dull gold pruinose.

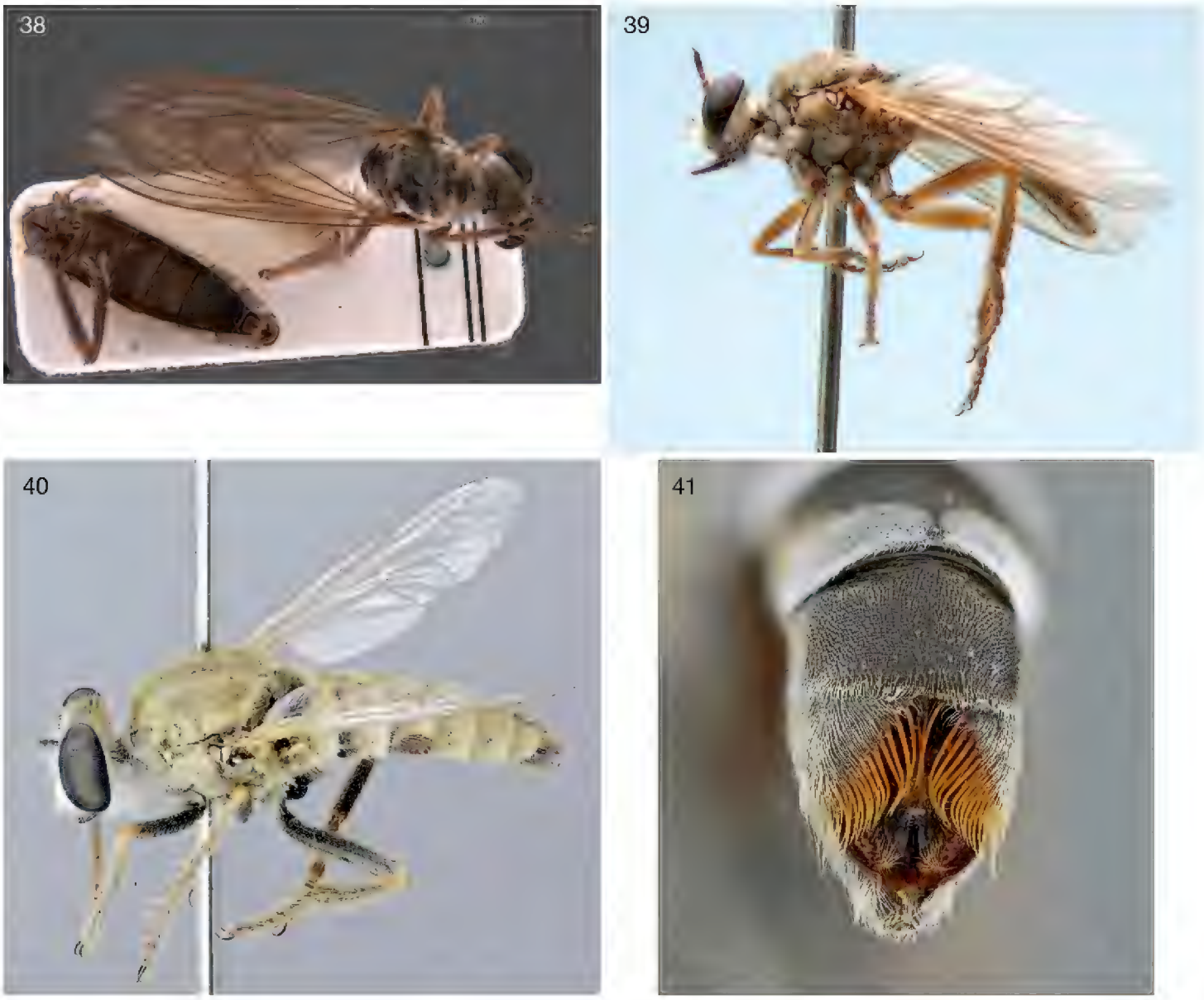
*Male terminalia* (Figs 42–44): Genital bulb rotated clockwise through approximately 180°. T7–8 and S7–8 reduced and poorly defined. Epandrium large, almost twice as long as broad, bilobed in distal quarter, tips of lobes broadly rounded (Fig. 42). Proctiger short, deep, not projecting beyond distal epandrial lobes. Hypandrium poorly defined, posterior margins weakly sclerotized, difficult to appreciate, especially in lateral view, subtriangular in ventral view (Fig. 44), wider than long. Gonocoxites moderately well-developed, approximately twice as long as deep, and sharply pointed distally in lateral view, long, densely arranged macrosetae on distal margin of gonocoxite. Gonostyli subdivided at base into two fairly slender, and fairly straight lobes, ventral lobe possessing a short pointed branch just beyond midlength. Phallus with a slender basal region tipped with a moderately large, terminal, three pronged head.

*Female terminalia* (Fig. 45): Relatively broad and dorsoventrally flattened. Segments 1–6 well-developed, segments 7–8 reduced. Subgenital plate moderately well-developed, broader than long, with undulating, distal margin featuring four distal lobes.

**Type material. Holotype. Mozambique: Inhambane:** 1♀ holotype 'Inhambo / Peters' [blue], '*Laphyctis* / *gigantella*', '10369', 'Type' [red], 'Coll. / H. Loew' (ZMHB).

*Type locality*: Loew (1852, 1858, 1862) repeatedly gives the country of origin as Mozambique. In 1858 and 1860 he cites Inhambane as the locality of the holotype although that name does not appear on the specimen. It must therefore be concluded that 'Inhambo' is an abbreviation for Inhambane [*c.* 23°53'17"S, 35°23'46"E 12m].

**Material examined. Malawi: Central:** 1♀ 'Nyasaland. / Domira Bay [*c.* 13°33'09"S, 34°24'26"E 476m] / 167 ft 17.1.16, 123c [sideways] / Dr. W. A. Lamborn', 'Pres. by / Imp. Bur. Ent.', '1919-314', 'NMHUK010624224' (BMNH); 1♀ 'Nyasaland. / Domira Bay / 167 ft 12.1.16 / Dr. W. A. Lamborn', '1916-259', 'NMHUK010624225' (BMNH); 1♀ 'Nyasaland. / Chunzi [?] / Nr. Domira Bay / 2420 ft 22.xii.1914 / Dr. W. A. Lamborn', 'Pres. by / Imp. Bur. Ent. / Brit. Mus. / 1925-122', 'NMHUK010624226' (BMNH). **South Africa: KwaZulu-Natal:** 1♂ 'Umfuli R. [? Umfolozi River *c.* 28°27'23"S, 32°08'48"E 26m] / Natal / Nov. 1895 / G.A.K. Marshall / 1903-17', 'NHMUK010624221' (BMNH). **Zimbabwe: Matebeland North:** 1♀

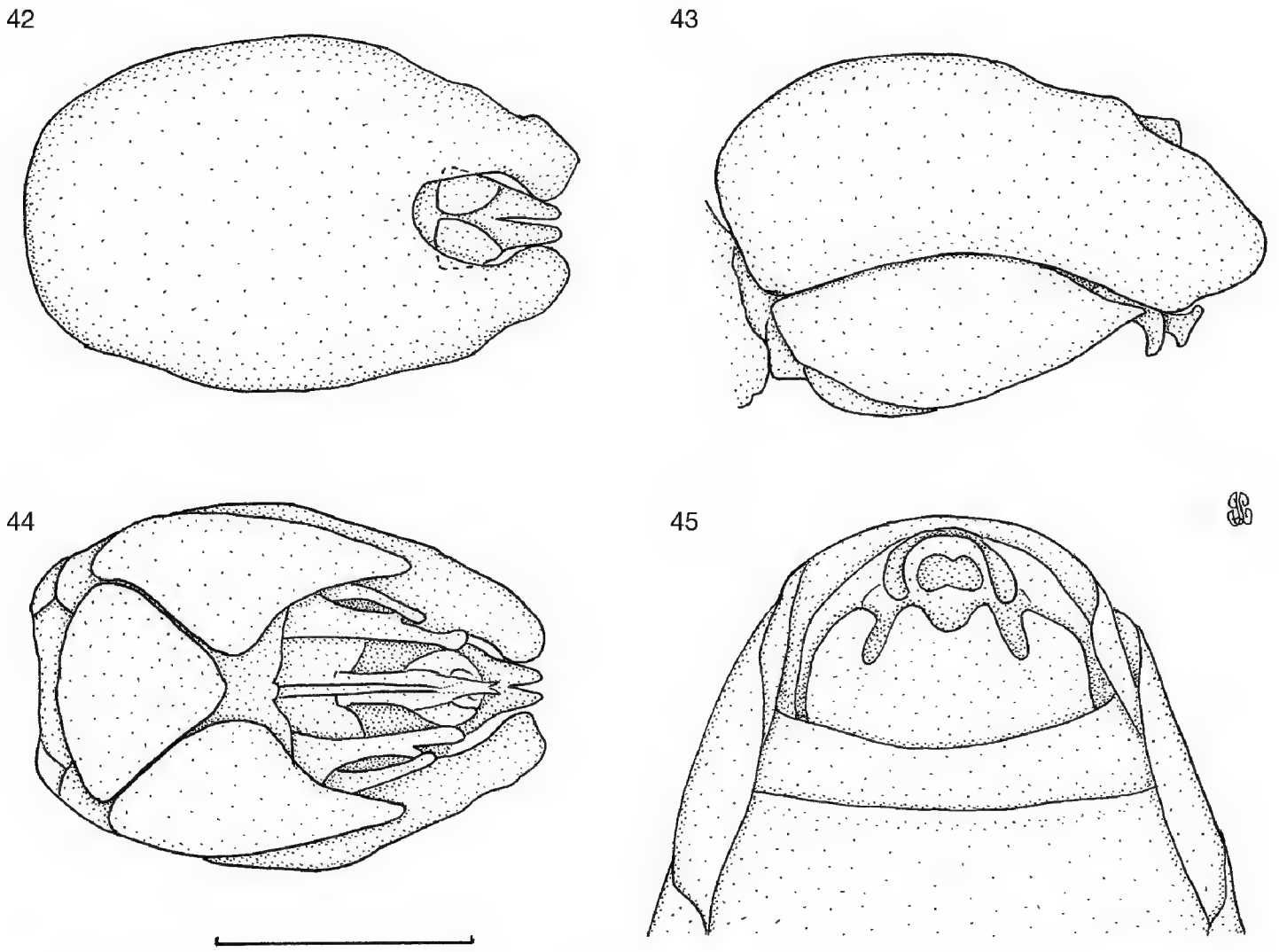



**Figures 38–41.** Photographs of *Laphyctis* species and detail of posterior gonocoxal setation: **38** *L. gigantella* (holotype ♀) **39** *L. iota* sp. n. (Kruger Park ♂) **40** *L. orichalcea* (holotype ♂) **41** *L. eremia* sp. n. dorso-anterior view of hypopygium. Not to same scale.

'Sawmills [*c.* 19°35'00"S, 28°02'23"E 1065m] / S. Rhodesia / 26.12.1919 / Rhodesia / Museum', 'S. Rhodesia: / Pres. By / J. Isgaer Roberts. / B.M. 1928-262', 'No type status / det. J. E. Chainey, 1984', 'NHMUK010624216' (BMNH); 1♂ '*Laphystia* / *gigantella* Loew', 'Pres. by / Imp. Bur. Ent. / Brit. Mus. / 1923-233', 'Sawmills / S. Rhodesia / 25.12.1919 / Rhodesia / Museum', 'NHMUK010624228' (BMNH); 1♀ 'Pres. by / Imp. Bur. Ent. / Brit. Mus. / 1923-233', 'Sawmills / S. Rhodesia / 26.12.1919. / Rhodesia / Museum', 'No type status / det. J. E. Chainey, 1984', 'NHMUK010624223' (BMNH); 1♀ 'N. E. Rhodesia / Buyamuryama [? poorly handwritten] / Boma / 19-xii-1910 / E. O. Silverlock. / 1911-168' 'NHMUK010624211' (BMNH).

Lindner (1973: 85) lists three females of *L. gigantella* from Gobabeb, Namibia, which we identified as *L. eremia* sp. n. (see above).

**Distribution, biodiversity hotspots, phenology and biology.** Fairly widely distributed in the southern parts of Africa being recorded with certainty from Malawi, Mozambique, South Africa and Zimbabwe (Fig. 56). A rarely collected species over a restricted period of time with the most recent collecting event dating to 1919 (Table 1). Two localities overlap with the Maputaland-Pondoland-Albany (in KwaZulu-Na-




**Figures 42–45.** *Laphyctis gigantella* terminalia: **42** male (Sawmills) dorsal **43** same, lateral **44** same ventral **45** female (Buyamuryama Boma) ventral. Scale = 1 mm, setation omitted.

tal, South Africa) and Coastal Forests of Eastern Africa (in Inhambane, Mozambique) biodiversity hotspots, but this species is not endemic to any particular biodiversity hotspot. Adults are clearly summer active, being collected in November, December and January (Table 2). Although specimens lack habitat information the species probably inhabits sandy areas such as lake shores, river banks and similar situations.

***Laphyctis iota* sp. n.**
http://zoobank.org/9287C384-235E-45D5-B579-FC2F7535BC74
Figs 20, 26, 39, 46–50, 56

**Etymology.** Gr. *iota* = anything very small. Refers to the fact that this is by far the smallest species described in the genus.

**Description.** Based on all examined material. General appearance as in Fig. 39.

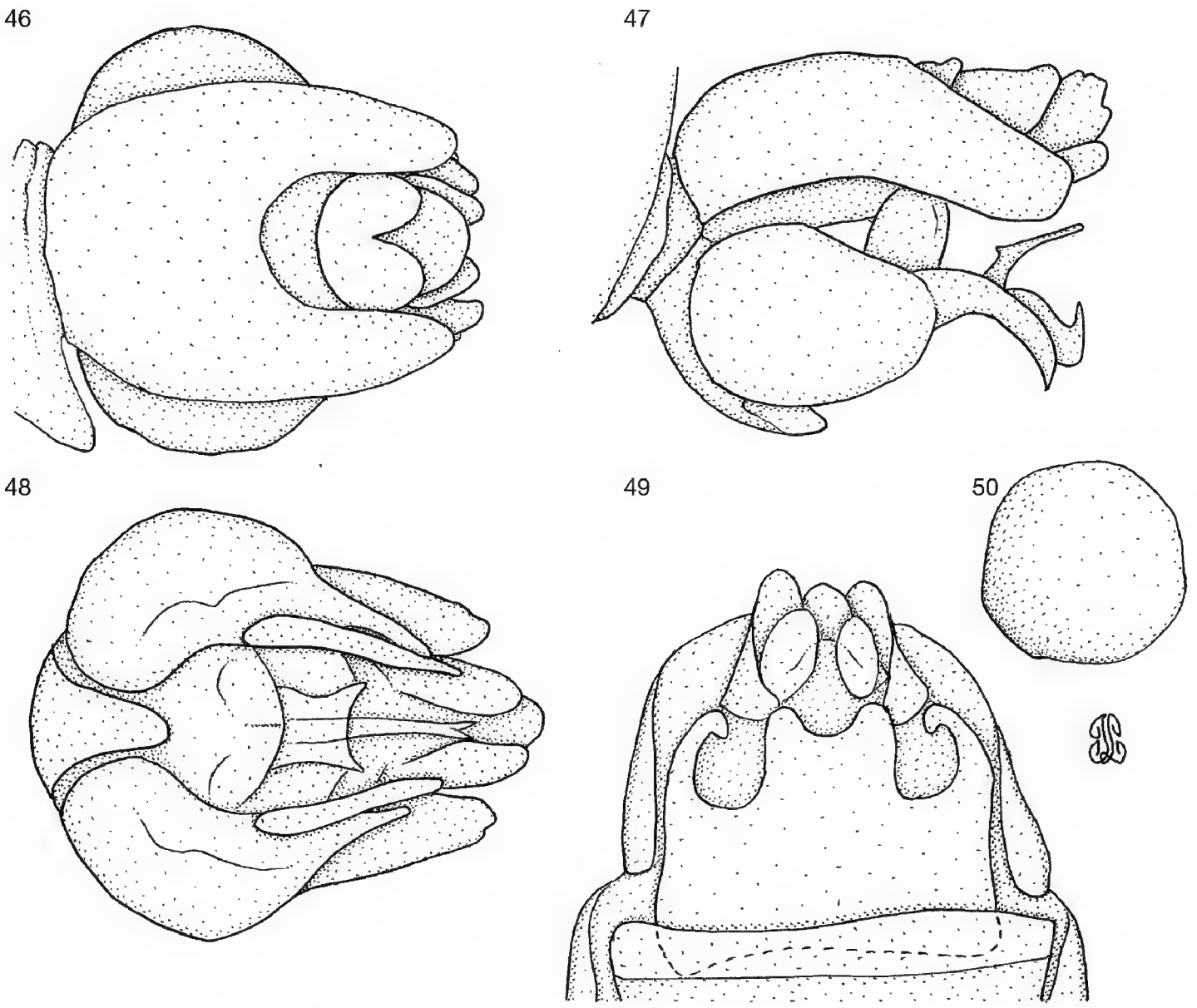
*Head*: Dark red-brown, but colour masked by strong gold-silver pruinescence, shiny white and pale yellow setose. Antennae mostly red-brown, fine gold pruinose, especially scape. Scape red-brown, strongly pale yellow setose distoventrally. Pedicel red-brown with a few small setae distally. Postpedicel red-brown with distal 2/3 dark red-drown, with narrow terminal cup-shaped style, opening oblique and enclosing a spine-

like sensory element. Segmental length ratios = 1: 0.8: 2.3: 0.6. Face dark red-brown, colour masked by strong gold-silver pruinescence (except for extreme lateral margins of epistomal margin). Width of one eye: face ratio = 1: 1.0 (face approximately equal in width to 1 eye). Face projecting ventrally, profile plane (Fig. 20). Mystacal macrosetae shortish pale yellow, not extending beyond ventral quarter of face. Dorsal region of face fine yellow setose. Frons and vertex dark red-brown, colour entirely masked by silver-gold pruinescence, fine sparse pale yellow setose. Ocellar tubercle sparse fine pale yellow setose (no macrosetae). Postocular (occipital) region dark red-brown, colour entirely masked by strong gold-silver pruinescence. Occiput with 2 curved rows of *c.* 12 short, pale yellow macrosetae dorsally and many fine white setae, mostly ventrally. Palpi dark red-brown, 2-segmented, pale yellow setose. Proboscis straight, shiny dark red-brown, fine yellow setose proximally and distally.

*Thorax*: Red-brown, uniformly strongly silver-gold pruinose, orange and pale yellow setose. Pronotum dark red-brown, silver-gold pruinose, fine yellow setose. Mesonotum dark red-brown, entirely fine silver-gold pruinose, uniformly fine shiny yellow microsetose (slightly longer posteriorly) except for moderately developed, orange lateral macrosetae (3 npl, 2–4 spal, 2 pal). Scutellum dark red-brown, disc entirely fine silver-gold pruinose. Discal scutellar setae fine yellow, *c.* 4–6 weakly developed apical scutellar setae, directed dorsally. Pleura red-brown, entirely silver-gold pruinose, fine pale yellow setose. Katatergal macrosetae moderately developed, pale yellow. Anatergites uniformly strongly gold-silver pruinose, asetose. Postmetacoxal area membranous. *Legs*: Coxae orange-brown, silver-gold pruinose, pale yellow and white setose. All trochanters, femora, tibiae and tarsi orange-brown, shiny orange and fine white setose. Claws well-developed, dark red-brown with narrow brown-orange basal parts. Empodium red-brown, straight, as long as claws. Pulvilli pale orange, well-developed. *Wings* (Fig. 26): ♂ (1) 4.6 × 1.9 mm, ♀ (3) 4.9 × 2.0 mm (female bigger than male, *note*: wings in poor condition with some margins tatty). Venation: All marginal cells open except for $m_3$ and cua, which are closed and stalked. Veins yellow-brown, membrane unstained, transparent, almost entirely microtrichose. Cell cup with weakly developed bordering vein (C) and microsetae. Alula well-developed, lacking bordering vein but with marginal microsetae.

*Abdomen*: Dark red-brown, entirely pale yellow setose, macrosetae pale yellow, weakly silver-gold pruinose. Tergites (T1–6 well-developed and clearly evident, others reduced and hidden from view below T6) uniform red-brown, entirely fine yellow microsetose, weakly silver-gold pruinose. T1–6 with pale yellow discal macrosetae. Sternites red-brown, fine pale yellow setose, weak silver-gold pruinose.

*Male terminalia* (Figs 46–48): Genital bulb rotated clockwise through approximately 270°. T7–8 and S7–8 reduced and poorly defined. Epandrium well-developed, about four times longer than deep in lateral view and about one and a half times as long as broad in dorsal view; deeply bilobed in distal quarter (Fig. 46). Proctiger well-developed, deep, projecting only slightly beyond distal epandrial margin. Hypandrium small, moderately well sclerotized, elongate, terminating on a narrowly rounded distal projection (Fig. 48). Gonocoxites suboval proximally, well-developed, deeper than




**Figures 46–50.** *Laphyctis iota* (Kruger Park) terminalia: **46** male dorsal **47** same, lateral **48** same ventral **49** female ventral **50** egg. Scale bar = 1 mm, setation omitted.

epandrium in lateral view, with long, tapering, slightly downward curved distal projection, few short macrosetae on distal margin of gonocoxite. Gonostyli elongate, projecting beyond level reached by gonocoxites, distal tips pointed and dorsally directed. Phallus with narrow, slightly upcurved, pointed distal region.

*Female terminalia* (Fig. 49): Relatively broad and dorsoventrally flattened. Segments 1–6 well-developed, segments 7–8 somewhat reduced. Subgenital plate moderately well-developed, almost twice as broad as long, with undulating, characteristically trifurcate distal margin. Egg (found in abdominal after maceration) spherical (Fig. 50).

**Type material. Holotype. South Africa: Mpumalanga:** 1♂ holotype 'South Africa. Transvaal / Kruger Park 5.i.1974 2431Db / 20 km NNE of Tshokwane [*c.* 24°45'55"S, 31°52'13"E 255m] / near road junction S35-S37 / B&P Stuckenberg open savanna' [NSMA-DIP-07841].

**Paratypes.** 3♀, same data as holotype (NSMA-DIP-71782–4].

**Distribution, biodiversity hotspots, phenology and biology.** Known only from the type locality in South Africa's, Kruger National Park (Fig. 56). A rarely collected

species known only from a single collecting event (Table 1). The species is so far endemic to the Maputaland-Pondoland-Albany biodiversity hotspot. Adults are probably summer active, being collected in January in what is a summer rainfall region (Table 2). The collection site was almost certainly in an open grassland area, but along a dry river bed where scattered thorn trees grow. There is little doubt that the species, like others in the genus, rests on open sand.

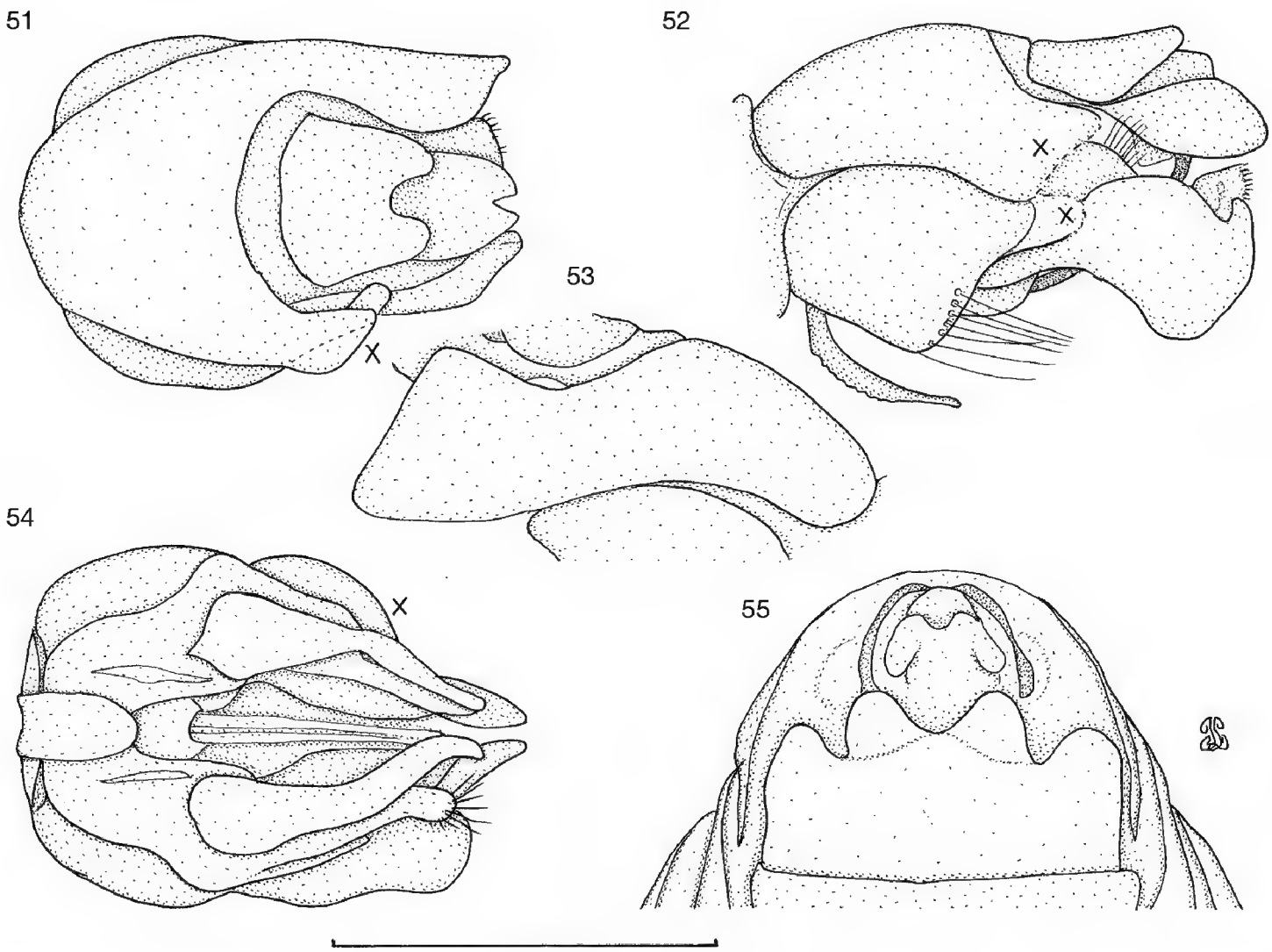
***Laphyctis orichalcea* (Lindner, 1973)**
http://zoobank.org/0A31BF62-2F1A-426C-BCC2-00A968059F3A
Figs 21, 27, 40, 51–56

*Laphystia orichalcea* Lindner, 1973: 74.
*Laphyctis orichalcea* Londt, 1988: 513.

**Redescription.** Based on material examined. General appearance as in Fig. 40.

*Head*: Dark red-brown to black, but colour masked by strong gold-silver pruinescence, shiny white and pale yellow setose. Antennae mostly dark red-brown, fine silver pruinose, especially scape. Scape strongly pale yellow setose ventrally. Pedicel almost asetose, only a few tiny setae distally. Postpedicel with narrow terminal cup-shaped style, opening oblique and enclosing a spine-like sensory element. Segmental length ratios = 1: 0.9: 2.7: 0.8. Face dark red-brown to black, but colour masked by strong gold-silver pruinescence (except for extreme lateral margins of epistomal margin). Width of one eye: face ratio = 1: 1.06 (face slightly wider than width of 1 eye). Face projecting ventrally, profile plane (Fig. 21). Mystacal macrosetae short pale yellow accompanied by many shorter white setae, confined to narrow band along lower facial margin, not extending beyond ventral quarter of face. Dorsal region of face white setose. Frons and vertex dark red-brown to black, colour entirely masked by bright gold-silver pruinescence, fine pale yellow-white setose. Ocellar tubercle fine pale yellow setose (no macrosetae). Postocular (occipital) region dark red-brown to black, colour entirely masked by strong gold-silver pruinescence. Occiput with a curved row of *c.* 12 short, pale yellow macrosetae dorsally and many fine white setae, mostly ventrally. Palpi dark red-brown, 2-segmented, fine white setose. Proboscis straight, shiny dark red-brown, fine white setose proximally and distally.

*Thorax*: Dark red-brown to black, uniformly strongly gold-silver and silver-gold pruinose, orange, pale yellow and fine white setose. Pronotum dark red-brown, silver pruinose, fine white setose. Mesonotum dark red-brown, entirely silver-gold pruinose, uniformly fine shiny pale yellow microsetose (longer posteriorly) except for moderately developed, orange lateral macrosetae (4 npl, 2–3 spal, 3 pal). Scutellum dark red-brown to black, entirely fine silver-gold pruinose. Discal scutellar setae yellow, *c.* 20 apical scutellar setae, directed dorsally. Pleura dark red-brown to black, entirely gold-silver pruinose, fine white and yellow setose. Katatergal macrosetae moderately developed, pale yellow. Anatergites uniformly strongly silver pruinose, asetose. Postmetacoxal area membranous. *Legs*: Coxae dark red-brown, silver pruinose, white se-




**Figures 51–55.** *Laphyctis orichalcea* terminalia: **51** male (Brandberg) dorsal **52** same, lateral (left side) **53** same, lateral (right side) **54** same ventral **55** female (Otjiu) ventral. x = damaged. Scale = 1 mm, setation omitted.

tose. Femora dark red-brown with distal quarter orange, tibiae and tarsi orange, all leg setae orange. Claws well-developed, black with brown-orange basal parts. Empodium red-brown, straight, slightly longer than claws. Pulvilli pale yellow, well-developed. *Wings* (Fig. 27): ♂ (1) 7.2 × 2.8 mm, ♀ (1) 7.7 × 3.0 mm (female slightly larger than male). Venation: All marginal cells open except for $r_5$, $m_3$, and cua, which are closed and stalked. Veins yellow to yellow-brown, membrane unstained, transparent, entirely lacking microtrichia. Cell cup largely lacking bordering vein (C) and microsetae. Alula well-developed, lacking bordering vein and microsetae.

*Abdomen*: Red-brown to orange, entirely pale yellow setose, macrosetae yellow, silver-gold pruinose. Tergites (T1–6 well-developed and clearly evident, others reduced and hidden from view below T6) red-brown to orange, entirely yellow microsetose, silver-gold pruinose. T1–5 with pale yellow discal macrosetae. Sternites brown, fine pale yellow setose, silver-gold pruinose.

*Male terminalia* (Figs 51–54): Genital bulb rotated clockwise through approximately 90°. T7–8 and S7–8 reduced and poorly defined. Epandrium large almost twice as long as broad, deeply bilobed in distal half (Fig. 51, *note*: distal end of left epandrial lobe and gonocoxite are broken off and missing). Proctiger large, well-developed, projecting slightly beyond epandrial lobes. Hypandrium poorly defined

basally, projecting medioventrally as a dorsoventrally flattened, parallel-sided, slightly curved lobe (Fig. 54). Gonocoxites well-developed, broader in lateral view than epandrium, almost as long as epandrium, distal end equipped with strong, short macrosetae, moderately developed macrosetae on distal margin of gonocoxite. Gonostyli large, laterally compressed, broad in lateral view with dorsally directed distal end. Phallus well-developed, shaft as wide as gonostyli in ventral view tapering to a darkly sclerotized tip.

*Female terminalia* (Fig. 55): Relatively broad and dorsoventrally flattened. Segments 1–6 well-developed, segments 7–8 reduced. Subgenital plate moderately well-developed, almost twice as broad as long, with undulating, four-lobed distal margin.

**Type material. Holotype: Namibia: Erongo:** 1♂ 'Laphystia / orichalcea Lind. / Lindner det.', 'Sovakopmund [sic. Swakopmund *c.* 22°40'58"S, 14°31'59"E 12m] SWA. / 10.–16.2.1970 /Lindner leg. [blue]', '*Laphyst* / *Laphystia* / sp. / det H. Oldroyd 1970', 'Typus / Lindner 1973 [red ink]' (SMNS]. *Note*: Lindner (1973) described the species on the basis of a single male, giving details as '1♂ von Swakopmund 10.–16. II.1970'. While he labelled his specimen 'Typus', he did not actually designate the specimen as holotype in his publication. As there were no other specimens it can be assumed that his single specimen is the holotype.

**Material examined. Namibia: Kunene:** 1♀ 'Otjiu / 18°14'S, 13°15'E [*c.* 18°13'49"S, 13°16'25"E 745m] / Kaokoland / 22 Feb. 1985 / J. Irish, H. Rust', 'H63397' (NMNW); 1♀ 'Purros [*c.* 18°46'23"S, 12°56'34"E 285m], S. Kaoka- / veld S.W.A. / SE 1812Dd / 22.i.1981 / Univ. Van Pretoria' [NSMA-DIP-07854] (NMSA); 1♂ 1♀ 'Brandberg Mts. [*c.* 21°05'23"S, 14°40'50"E 550m] / 2214BA [? sic] S.W.A. / 20.2.1969 / B. Lamoral' [ID Oldroyd as *Laphystia* sp. n.] [NSMA-DIP-07850 (♂), 71785] (NMSA); **Erongo:** 1♀ 'Namibia: Swakopmund: / 10 Km E Swakopmund [c. 22°37'43"S, 014°39'02"E] / 23.2.1990 / leg. Max. Schwarz' (COGG).

**Distribution, biodiversity hotspots, phenology and biology.** Known from four localities in Namibia (Fig. 56). A rarely collected species over a restricted period of time with the most recent collecting event dating to 1990 (Table 1). Collected in January and February (Table 2). Not known to occur in any biodiversity hotspot. The Otjiu (18°13'49"S, 13°16'25"E) locality apparently harbours both *L. orichalcea* and *L. eremia* sp. n. based on two collecting events in 1929 (early March) and 1985 (late February), respectively. Nothing is known of the biology and while no habitat data are provided, Google Earth images suggest dry river beds where bushes and/or small trees occur.

### *Laphyctis* sp.

Figs 22, 56

**Note.** The following specimen is unique and probably represents an undescribed species. It is in poor condition and so we refrain from providing it with a name until additional material becomes available.

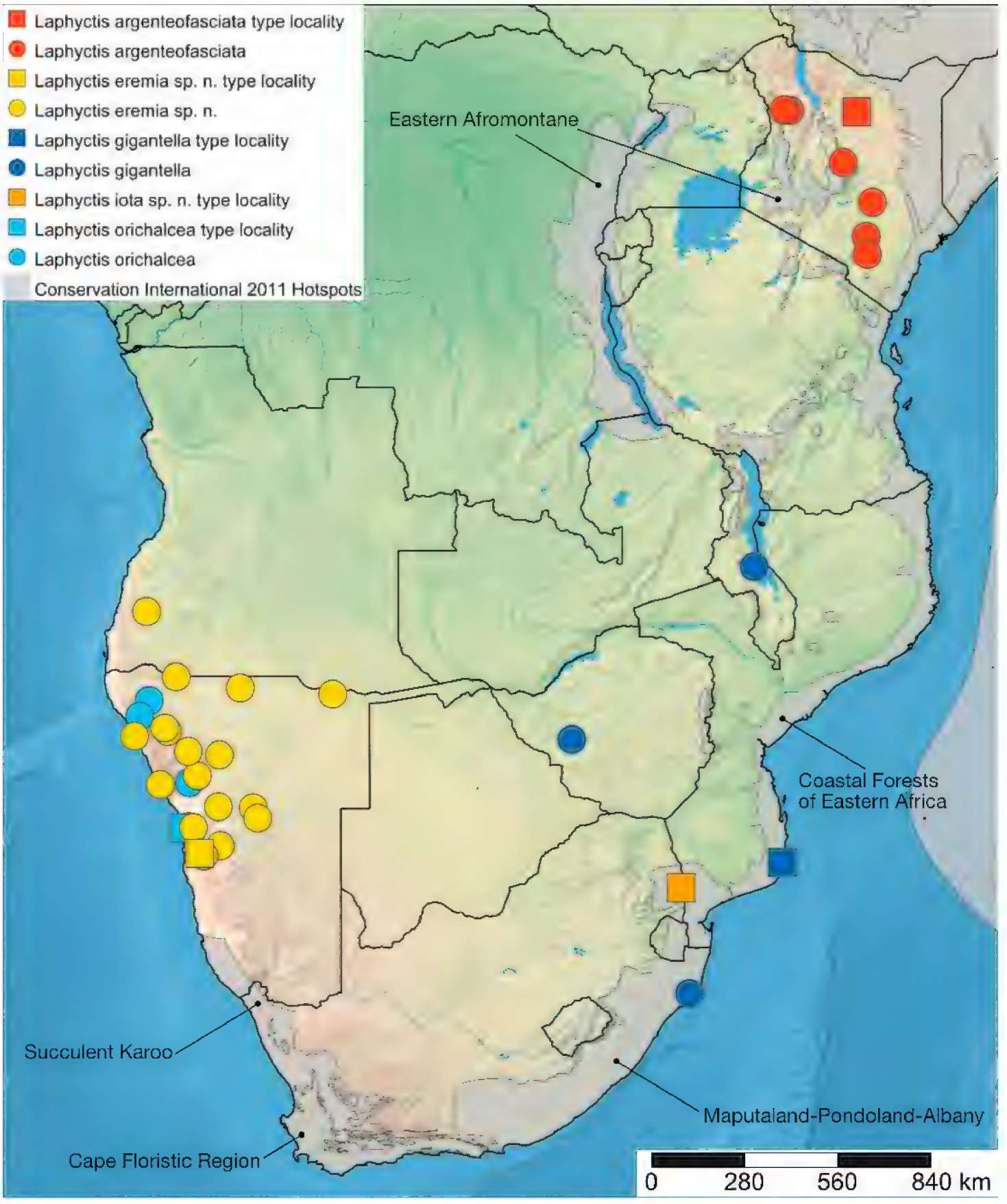



**Figure 56.** Map of sub-Saharan Africa with elevational relief, Biodiversity Hotspots (*sensu* Conservation International), and distribution of *Laphyctis* species (SimpleMappr 9287). *Laphyctis* sp. (NSMA-DIP-07858) shares the same locality as *Laphyctis gigantella* in western Zimbabwe.

**Description.** Based on the single female listed below.

*Head*: Dark red-brown, but colour masked by strong gold-silver pruinescence, shiny white and pale yellow setose. Antennae mostly orange-brown, fine silver pruinose, especially scape. Scape pale yellow setose ventrally. Pedicel with only a few tiny setae distally. Postpedicel with narrow terminal cup-shaped style, opening oblique and

enclosing a spine-like sensory element. Segmental length ratios = 1: 0.7: 1.9: 0.5. Face dark red-brown, but colour masked by strong gold-silver pruinescence (except for extreme lateral margins of epistomal margin). Width of one eye: face ratio = 1: 0.94 (face slightly narrower than width of 1 eye). Face hardly projecting ventrally, profile slightly convex (Fig. 22). Mystacal macrosetae shiny pale yellow, confined to ventral third of face. Dorsal region of face fine white setose. Frons and vertex dark red-brown, colour masked by dull gold-silver pruinescence, fine white setose. Ocellar tubercle fine white setose (no macrosetae). Postocular (occipital) region dark red-brown, colour masked by strong gold-silver pruinescence. Occiput with rows of *c.* 9 moderately long, pale yellow macrosetae dorsally and many fine, shiny white setae, mostly ventrally. Palpi brown-orange, 2-segmented, fine white setose. Proboscis straight, red-brown, fine white setose proximally and distally.

*Thorax*: Dark red-brown to brown-orange, uniformly silver-gold pruinose, pale yellow and fine white setose. Pronotum red-brown, silver pruinose, fine white setose. Mesonotum dark red-brown and orange-brown, entirely fine gold-silver pruinose, uniformly fine shiny yellow-white microsetose except for moderately developed, pale yellow lateral macrosetae (3 npl, 4 spal), pal setae absent. Scutellum dark red-brown, entirely fine gold-silver pruinose. Discal scutellar setae fine yellow, apical scutellar setae absent. Pleura brown-red to dark red-brown, entirely gold-silvery pruinose, fine white setose. Katatergal macrosetae moderately developed, fine pale yellow. Anatergites uniformly silver pruinose, asetose. Postmetacoxal area membranous. *Legs*: Fairly uniform orange-brown, shiny white to pale yellow setose. Coxae fine silver-gold pruinose. Claws well-developed, dark red-brown with orange basal parts. Empodium orange, straight, slightly longer than claws. Pulvilli pale orange, well-developed. *Wings*: ♀ 9.5 × 3.4 mm. Venation: All marginal cells open except for $r_5$, $m_3$, and cua, which are closed and stalked. Veins yellow-brown, membrane unstained, transparent, microtrichose (except for small parts of some basal cells). Cell cup with weak bordering vein (C) and microsetae. Alula well-developed, lacking bordering vein and microsetae.

*Abdomen*: Dark red-brown to black, fine white microsetose, macrosetae pale white, silver pruinose. Tergites (T1–6 well-developed and clearly evident, others reduced and partly hidden from view below T6) dark red-brown to black, silver pruinose, lateral margins, most of surface apruinose. T1–6 with pale white discal macrosetae. Sternites dark red-brown, colour masked by silver pruinescence, fine white setose. Genitalia not dissected.

**Material examined. Zimbabwe: Matebeland North:** 1♀ 'Sawmills [*c.* 19°35'00"S, 28°02'23"E 1065m] / S. Rhodesia / 10.12.1926 / RHR Stevenson' [ID Fisher - *Laphystia*] [NSMA-DIP-07858] (NMSA).

**Distribution, biodiversity hotspots, phenology and biology.** Known from a single locality in Zimbabwe (Fig. 56) and single collecting event (Table 1). The Sawmills (19°35'00"S, 28°02'23"E) locality apparently harbours both this undescribed species and *L. gigantella* based on two collecting events in 1926 (early December) and 1919 (late December), respectively. Not known to occur in any biodiversity hotspot. Collected in December (Table 2). Nothing is known of the biology.

**Key to species of *Laphyctis***

1 Cell $r_5$ closed (Figs 23, 27) ..... **4**
– Cell $r_5$ open (Figs 24–26) ..... **2**
2 Small species (wing < 6 mm long, Fig. 39); 3 notopleural macrosetae; postalar macrosetae present ..... ***L. iota* sp. n.**
– Large species (wing > 6 mm long, Fig. 28); 1 notopleural macroseta; postalar macrosetae absent ..... **3**
3 Epistomal margin projecting anteriorly, medially pointed, facial profile straight (Fig. 18); femora dark red-brown to black; ♂ gonocoxite distally rounded (Fig. 35) ..... ***L. eremia* sp. n.**
– Epistomal margin not projecting anteriorly, medially smoothly rounded, profile slightly convex (Fig. 19); femora pale red-brown; ♂ gonocoxite distally pointed (Fig. 43) ..... ***L. gigantella***
4 Dorsocentral setae present (Fig. 40); postalar setae present (Fig. 40); apical scutellar setae present (Fig. 40); wing membrane lacking microtrichia (Fig. 27) ..... ***L. orichalcea***
– Dorsocentral setae absent; postalar setae absent; apical scutellar setae absent (or minute); wing membrane with microtrichia present (Fig. 23) ..... **5**
5 Mystax extending into dorsal half of face (Fig. 17); femora, tibiae and tarsi mostly black; East Africa: Kenya ..... ***L. argenteofasciata***
– Mystax confined to ventral half of face (Fig. 22); femora with distal ¼ orange, tibiae and tarsi entirely orange; southern Africa: Zimbabwe... ***L.* sp.** (Sawmills ♀)

An online, illustrated version of this key is available at http://keys.lucidcentral.org/keys/phoenix/laphyctis/

## Discussion

*Laphyctis* is a distinctive member of the Laphriinae and is confined to the Afrotropical Region (Fig. 56). The possession of an open cell $r_1$ clearly separates it from *Laphystia* which has a closed cell $r_1$ and is the type genus of the tribe Laphystiini. *Laphyctis* can furthermore be separated from *Laphystia* by the presence of long, densely arranged macrosetae on the distal margin of the gonocoxite in males (Fig. 41), which are not known in any *Laphystia* species (E. Fisher pers. comm.).

Londt and Dikow (2017b) provided an identification key to all 148 Asilidae genera currently known from the Afrotropical Region. Now that the study of *Laphyctis* is completed, we realise that the key uses some features leading to *Laphyctis* that are incorrect. Couplet 76 (page 1120) states that cell $r_5$ is open leading to couplet 77 in which *Laphyctis* and *Ericomyia* Londt, 2015 are distinguished. Cell $r_5$ is open in three and closed in two *Laphyctis* species (see key above). Couplet 77 states that apical scutellar macrosetae are present in *Laphyctis*, but absent in *Ericomyia*. Apical scutellar macrosetae are present in two

species (*iota* sp. n., *orichalcea*) and absent in three (*argenteofasciata*, *eremia* sp. n., *gigantella* as well as *L.* sp.). The online version of the key to Afrotropical Asilidae genera, which is accessible at http://keys.lucidcentral.org/keys/phoenix/Afrotropical_Asilidae_genera/, has been adjusted accordingly. We also make an updated written dichotomous key in PDF-format available at Figshare http://dx.doi.org/10.6084/m9.figshare.5977690 .

Two localities, Otjiu in northern Namibia and Sawmills in western Zimbabwe, harbour each two species occurring sympatrically. Both species pairs, Otjiu = *L. eremia* sp. n. and *L. orichalcea*, Sawmills = *L. gigantella* and *L.* sp., were collected at slightly different times of the active flying season at least seven years apart. Both localities are small settlements and the flies can certainly have been collected in the vicinity in slightly different habitats and we have no doubt that each collecting event resulted in a different taxon based on our morphological comparisons (see also identification key above in regards to *Laphyctis* sp.).

Species of *Laphyctis* are associated with dry, sandy habitats frequently supporting sparsely growing bushes and trees (Figs 1–2, 6). While they are commonly found resting on the ground they possess well-developed pulvilli and so probably also perch on stones and low vegetation (see Londt and Copeland 2017). Virtually nothing is known of their biology. All species are summer active in the adult stage (Table 2). Only *Laphyctis iota* sp. n. is endemic to a biodiversity hotspot *sensu* Conservation International (Maputaland-Pondoland-Albany) and *L. gigantella* occurs in both the Maputaland-Pondoland-Albany and Coastal Forests of Eastern Africa hotspots while none of the other species occurs within any hotspot boundaries.

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